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CREATIVITY AND HIGH SCHOOL CLIMATE.

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THIS PROJECT WAS DESIGNED TO STUDY THE CHARACTERISTICS OF A HIGHLY CREATIVE SCHOOL AS OPPOSED TO A TRADITIONAL SCHOOL. FOUR HIGH SCHOOLS OF COMPARABLE SOCIOECONOMIC AND STUDENT ABILITY LEVEL WERE INVOLVED. TWO WERE JUDGED TO BE OF THE HIGHLY CREATIVE TYPE. THE STUDENTS WERE GIVEN VARIOUS TESTS, AND CLASSES WERE OBSERVED. THE FINDINGS SHOWED THE FOLLOWING CHARACTERISTICS OF CREATIVE SCHOOLS--(1) HIGH ASPIRATION LEVEL AND INTELLECTUAL CLIMATE, (2) LESS AUTHORITARIAN, BUT NOT LESS RATIONAL, TEACHER DIRECTION, AND (3) STIMULATING AND ORIGINAL CLASSROOM BEHAVIOR ON THE PART OF THE TEACHERS. SUGGESTED AIMS FOR AN EXTENSION OF THE PRESENT STUDY INCLUDE PROJECTS FOR COMPARISON OF CREATIVE STUDENT PRODUCTIVITY AS WELL AS FURTHER INVESTIGATION INTO THE NATURE OF CREATIVITY AND OF THE RELATIONSHIP OF THE SCHOOL ENVIRONMENT TO THE DEVELOPMENT OF CREATIVITY. (PM)

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CREATIVITY AND HIGH SCHOOL CLIMATE

by

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FINAL REPORT

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W. J. W.

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CHAPTER I

ANALYSIS OF THE PROBLEM

Introduction

In his presidential address to the American Psychological Association, Guilford (1950) raised a number of questions related to the study of creativity. Why is creative productivity such a rare occurence? It is estimated that of all the people who have lived, only about two in a million have become really distinguished. Why is there so little correlation between education and creative productiveness, and why is the appearance of creative genius so infrequent under enlightened educational practice? A common complaint concerning college graduates in scientific and technological positions is that although they are efficient in exhibiting competence in the techniques they have learned, they are helpless when faced with problems calling for original solutions. Anderson (1959) stated that although small children are universally creative, creativity among adults is almost non-existent. What happens to this tremendous resource?

In addition to discovering ways to locate creative potential in our children, we must learn how best to promote the development of creative personalities (Guilford, 1950). Although there have been advances in measuring creativity, the process necessary to stimulate a creative act remains nebulous (Fliegler and Bish, 1959). We need to know more about the environmental conditions that account for a superior individual's being both creative and highly intelligent. We need to explore the relationship to creativity of such factors as teacher competence and personality, range and availability of materials of instruction, and teaching methodology (Norman and Tomlinson, 1959).

Statement of the Problem

Broadly stated, this study was designed to investigate environmental conditions believed to be related to the development of creativity. More specifically, the purpose of this research was to examine characteristics of schools judged to be the type that promote the development of creativity as compared with schools not considered outstanding in this regard. Exploratory in nature and employing case study techniques, this study investigated four high schools with regard to psychological climate, teacher personality, teaching methodology, student attitudes, and student creativity. What are the environmental characteristics of "high creative" schools as compared with more traditional schools? In high creative schools is there evidence that teachers are more flexible, stimulating, and original? In what ways does the school encourage originality, experimentation, and initiative? Are highly creative students more favorable toward their educational experience? Do the students perform better on tests designed to measure those cognitive abilities thought to be important for creativity?

Significance of the Study

Zirbes (1956) has stated: "If there is a shortage of creative engineers, if there is a shortage of creative designers, if there is a shortage of creative leaders, perhaps there are children in our schools who need to be headed toward creativity to reduce that shortage, and perhaps there is not only a shortage of teachers but a shortage of creativity in courage to step out, to redefine the educational task--the curriculum task--the research task, as one of implementing creativity in our teaching--in children's learning--in their thinking--in our living--in our world--in our difficult world today" (p. 25). Eyring (1959) believes that it must be clear even to madmen that world-wide cooperation in creative research can solve our economic problems and that following any other course of action will result in unimaginable human misery. Leaders who have responsibilities for programs that identify, develop, or utilize scientists should make every effort to implement recent scientific findings on the nature of creativity. Not only is creative talent necessary for the progress of science at its frontiers, it is vital to the rate of scientific advance which, in turn, has an important bearing on the military strength of the nation (Taylor, 1959). It is generally considered that research on the general environmental conditions--cultural, professional, and institutional--which are conducive to scientific research needs encouragement. Research in this area, although vitally needed, has been neglected. It will require the combined efforts of socialogists, social psychologists, economic historians, and historians of science (Taylor and Barron, 1963, p. 373).

In the schools it is generally recognized that the development of creativity is the crux of educating the gifted; a recognition of the importance of creativity will influence course content, grouping for instruction, teaching methodology, and administrative procedures (Fliegler and Bish, 1959). There is a need to be concerned with the implications and applications of recent research for the schools. What do recent findings mean in terms of what we teach and why and how we teach it? The present study provided an opportunity to relate a number of theoretical viewpoints to on-going school situations. So that a variety of theoretical orientations and a number of different instruments could be related to total learning situations, a broad molar approach was selected.

Assumptions

The present study is predicated on a number of assumptions: (1) Creativity is a universal commodity possessed by nearly everyone to some degree. Like intelligence, some individuals have more of it than others. (2) Creativity cannot be equated with intelligence as measured by the usual test of mental ability. These tests measure only a limited number of the factors which contribute to an individual's total cognitive make-up. Getzels and Jackson (1962) found that a group of students scoring in the top twenty percent on measures of intelligence did not include seventy percent of the students scoring in the top twenty percent on tests of creativity. (3) Creativity is influenced by environmental conditions; some environments tend to promote the development of creativity whereas others tend to inhibit it. Since schools differ in their environmental characteristics, it is assumed that some schools in comparison with others would have a greater number of characteristics likely to educe creativity. (4) Creative abilities are capable of being improved through training. Courses specifically designed to teach creative thinking have been effective in enabling individuals to become more efficient in the production of ideas. (5) Since creativity can be improved, the schools have a responsibility to provide the conditions and training necessary to accomplish this task. This makes it necessary that teachers and other educational leaders understand what creativity is and how it can be fostered.

Definition of Terms

Creativity

In the present study, three definitions of creativity were employed. For the purpose of measuring student creativity, it was defined as a quality thought to be composed of broad continua upon which all members of the population may be placed in different degrees (Good, 1959, p. 145) and referred to the type of cognitive ability reflected in performance on a series of paper and pencil tests designed to measure abilities considered important for creativity. These tests--Quick Responses, Plot Titles, Alternate Uses, and Consequences--have loadings on the "divergent" productive thinking factors of originality, ideational fluency, and spontaneous flexibility.

A second definition of creativity was used in guiding teachers and students in selecting students considered to be creative. Compiled from the research literature on creativity, it included a description of both cognitive and noncognitive traits believed to be associated with creativity. This definition is as follows:

> The creative person tends to be original in his thinking, sometimes having wild or unusual ideas. He is fluent in his use of words and in his production of associations, expressions and ideas. Flexible in his thinking, he is quick to strike out in new directions, often abandoning customary interpretations of usual objects in order to use objects in new ways. Because of a general sensitivity to problems, he seems to know when things are not as they should be.
>
> He is independent, dominant, self-confident and self-accepting. He has a need to develop personal independence to a high degree. Tolerant of ambiguity, he is willing to accept uncertainty in conclusions and decisions. He often seems dissatisfied, irritated and discontented. Usually full of energy, he is willing to work hard and long on tasks that interest him.
>
> He likes "divergent" thinking; instead of thinking toward one right answer, he is more likely to think that several answers will do. He has an interest in and liking for aesthetic expression, reflective thinking, rigorous thinking, fantasy, originality, and creativity in general.

A third definition of creativity related to the description used to select schools considered to be the type which foster the development of creativity. The following description of a "high creative" school incorporates ideas proposed by Anderson (1961), Franseth (1963), Hilgard (1959), and Torrance (1963). Essentially, a high creative school is an "open system of education" in which originality, initiative, experimentation, diversity, and invention are encouraged. Students have the opportunity to participate in setting goals and in making important decisions. Teachers stimulate originality and fluency of ideas and they themselves are imaginative and original. Students initiate inquiry on their own rather than along lines set by others, and time is provided for idiosyncratic specialization. Opportunities are available to exhibit and take responsibility for evidences of creativity, even though these evidences are not truly distinguished. The original work of the students is judged according to individual progress rather than according to group norms. During the academic year there are progressive changes toward greater diversity of talent rather than toward greater conformity. Learning in creative ways takes preference over learning by authority.

Psychological Environment

"The psychological environment may be thought of as a complex of stimuli that press upon the individual and to which his behavior constitutes a response. In a sense, these pressures are unique and private insofar as the view that each of us has of the world must be ultimately and inevitably private. As observers, however, we tend to draw conclusions of our own regarding the meaning of the events in which someone else is participating, and we also tend to organize and classify otherwise discrete events on the basis of seemingly common elements. . . . Murray introduced a taxonomy for classifying both the environmental pressures and the characteristic ways in which an individual strives to structure the environment for himself. He called the external pressures 'press,' their internal counterparts 'needs.' Both needs and press are inferred from characteristic activities and events, the former from things that the individual typically does, the latter from things that are typically done to him in some particular setting" (Stern, 1961, p. 35). In the present study the terms "environment" and "climate" were used interchangeably.

Hypotheses

Five hypotheses were tested. In addition, information of a general nature was gathered for the purpose of presenting a more complete description of each school and to suggest further confirmation for certain of the hypotheses.

Hypothesis 1.--The two high schools judged to be "high creative" will reveal environments characterized by factors usually considered conducive to the development of creativity. Scores in such areas as achievement, adaptability, change, dominance, energy, humanities, impulsion, and autonomy will tend to be high. Scores in those areas judged to inhibit creativity--abasement, blame-avoidance, sameness, deference, order, and passivity--will tend to be low. The two "traditional" schools will not score as high on the first group of scales (facilitators of creativity) nor as low on the second group (inhibitors of creativity) as the high creative schools. The high creative schools will score high on such factors as aspiration level, academic achievement, self-expression, academic climate, and student dignity, and low on such factors as academic organization and vocational climate. The traditional schools will score in the opposite direction.

Hypothesis 2.--Since creativity is assumed to thrive best in an atmosphere where there is flexibility and a tolerance of ambiguity, it is hypothesized that the professional staff of the high creative schools will tend to be composed of individuals who are more flexible, adaptive, comfortable, and out-going than the professional staff of the traditional schools. The teachers in the high creative schools will be less stereopathic (that is, less authoritarian) and more rational than teachers in more traditional schools.

Hypothesis 3.--Classroom learning situations in high creative schools will contain more of the features of an educational program that encourages creativity, that is, one which develops originality, initiative, experimentation, invention, individuality, and diversity. Opportunities are provided for learning in creative ways rather than predominantly by authority. The teachers will be more stimulating and original; the students will be more alert and initiating.

Hypothesis 4.--Students judged to be highly creative in the high creative schools will indicate more positive attitudes toward their school experience than will highly creative students in traditional schools. It would seem logical to expect highly creative students in environments congenial to the development of creativity to experience greater satisfaction with their school experience. Highly creative students in the more traditional environments would more likely experience dissatisfaction and frustration.

Hypothesis 5.--In comparison with students in the more traditional schools, students in the high creative schools will score higher on tests designed to measure some of the factors believed important for creativity. Creativity is invention, and invention is a form of production. This points toward the "divergent production" category of intellect, which includes such factors as originality, fluency, and flexibility. Assuming that creative factors can be improved, it would seem reasonable to expect students exposed to environments in which creativity is encouraged to perform better on tests of factors considered important for creativity.

Procedures

Population and Sample

Four high schools, comparable in a number of ways, participated in the study. The students were of similar socio-economic background and intellectual ability. The proportion of college-bound students was approximately the same. Two of the four schools were judged to be the type that fit the criteria for high creative schools, that is, they were schools in which originality, experimentation, initiative, and invention were encouraged. The other two schools, not considered outstanding in this regard, were judged to have educational programs of a more traditional nature.

In each of the four schools, approximately sixty intellectually superior eleventh and twelfth grade students were involved. Approximately thirty members of the professional staff having reasonably close association with the sixty students also participated.

Data and Instrumentation

The instruments used in the present study are presented under the heading of the particular hypothesis with which they are related:

Hypothesis 1.--The High School Characteristics Index (Stern, 1960) yielded information about the environmental "press" of the four high schools studied. This instrument, which evolved from Murray's needs-press paradigm (Murray, 1938), consists of thirty scales, each of which measures an hypothesized area of the psychological environment. The abasement-assurance scale, for example, assesses self-depreciation versus self-confidence. The scales co-vary together to form first- and second-order factors. For example, the scales of objectivity, assurance, and tolerance make up the factor designated student dignity. The instrument yields eleven first-order factors and two second-order factors.

Hypothesis 2.--The second hypothesis was tested by means of the Inventory of Beliefs, a 100-item instrument which purports to divide individuals along authoritarian-antiauthoritarian (stereopathic-nonstereopathic) lines. On the authoritarian end of the scale, individuals tend to be rigid, conforming, dogmatic, anxious, and uncomfortable. They find it difficult to shift mental sets required for varying types of problems. At the opposite end of the scale are individuals who are relaxed and comfortable and find it unnecessary to be on the defensive; they can handle abstract materials and can suspend judgments without experiencing undue anxiety. Two additional dimensions are included in this instrument--rationality and irrationality. Individuals who score high on the rational dimension tend to be consistent in their beliefs, whereas individuals who score high on the irrational dimension tend to be inconsistent.

Hypothesis 3.--Two instruments were used in connection with the third hypothesis. The first of these, the Observation Schedule and Record (Medley and Mitzel, 1958), provides information about classroom emotional climate, verbal emphasis (traditional activities), and social structure. The instrument is constructed so that the observer can objectively describe what transpires in a classroom, with provisions for indicating the kinds of activities that occur and the frequency with which they occur.

The second instrument, the Classroom Observation Record (Ryans, 1960), was used to evaluate teacher and student behavior. Eighteen dimensions of teacher behavior and four dimensions of student behavior are defined in considerable detail in a glossary which accompanies the instrument. Teacher and student behavior is rated on a seven-point scale for each of the dimensions.

Hypothesis 4.--To obtain information related to the fourth hypothesis, students who had been rated as highly creative were asked to write essays describing the shape of their education and the meaning the shape of it had for them. The instructions to the students included excerpts from essays written by university freshmen about their own experience of education (Stookey, 1961). Although the excerpts included selections which indicated both positive and negative attitudes towards the educational experience, no attempt was made to structure the situation in either direction. The students were free to develop the topic in their own way.

Hypothesis 5.--Four tests--Quick Responses, Plot Titles, Alternate Uses, and Consequences--, designed to measure cognitive abilities believed important in creativity, were used to test the fifth hypothesis. These tests measured the factors of ideational fluency, spontaneous flexibility, and the three dimensions of the factor originality--uncommonness, remoteness, and cleverness. Developed by Guilford and his associates as part of a series of studies of aptitudes of high-level personnel, the tests measure factors which find logical places in the "Structure of Intellect" (Guilford and Merrifield, 1960).

Procedures

During the period of approximately one week that the investigator spent at each of the four high schools, he administered the High School Characteristics Index and the tests of creativity to approximately sixty eleventh and twelfth grade students in each school. From lists of students rated as highly creative by teachers and students, fifteen students were selected to write the essays. The Inventory of Beliefs was administered to approximately thirty teachers. In addition, the investigator observed approximately twenty periods of instruction; talked with administrators, teachers, and students; and examined such school publications as yearbooks, newspapers, and news-letters. From student records, scores on intelligence tests and College Board examinations were obtained.

Analysis of the Data

The High School Characteristics Index was machine-scored and results summarized on IBM cards. Means and standard deviations for each scale were computed. The raw scale scores were transformed to standard scores, based on a normative sample of 210 university freshmen. By referring to tabled values for standard score means, it was possible to compare mean scale score values between any two schools. The computer program used to obtain factor scores for the College Characteristics Index was used to obtain factor scores for the High School Characteristics Index. Analysis of variance was used to determine differences in factor means for the four schools. Duncan's New Multiple Range Test (Edwards, 1960) indicated how the means differed.

The Inventory of Beliefs yielded two scores for each teacher--a stereopathic-nonstereopathic score and a rational-irrational score. The mean score on each dimension was computed for each school. Analysis of variance was used to indicate whether or not the means differed significantly. The mean scores of the four schools were plotted on a grid which indicated the relative position of the schools with regard to these dimensions. The numbers of individuals in the various categories (the number of stereopaths, rationals, etc.,) were presented.

The Observation Schedule and Record and the Classroom Observation Record were used to present descriptions of a number of classrooms and for comparisons between schools on a number of characteristics. An indication of the degree to which classrooms were teacher-centered was presented. A comparison of stimulating and original teacher behavior and initiating pupil behavior was made between schools.

The student essays were randomly assigned fictitious names, typewritten, and then presented to an independent evaluator who rated the essays according to the degree of favorable or unfavorabel attitudes exhibited toward the school experience. The reliability of the ratings was established by a second rater. Excerpts from the essays were selected for presentation.

The creativity tests, scored by an independent evaluator, yielded six raw scores which were transformed to standard scores, then combined into three factor scores. The three factors--originality, ideational fluency, and spontaneous flexibility--were then combined into a composite creativity index. The factor scores and the composite score of matched groups of students in the four schools were compared. Information regarding grade, age, sex, and intellectual ability was used in matching students.

Limitations

A number of difficulties were encountered with regard to the student sample. Because of the administrative requirements involved in arranging for the testing, it was necessary to work with existing classroom sections. This negated the possibility of working with random samples of students from each school. Since two of the schools were considerably smaller than the other two, it was necessary to work with eleventh grade students as well as twelfth grade students (originally the study had been designed for twelfth grade students). Thus the sample in each of the four schools was not as comparable as originally intended, making comparisons more difficult. In two of the schools the sixty students were all twelfth graders; in the other two schools the sample included a combination of eleventh and twelfth graders. A further complication was that the students in one school were somewhat older at each grade level than in the other three schools. When the students were matched on such variables as age, grade, sex, and intellectual ability, the size of the sample was decreased. The largest number of students that could be matched on grade, age, sex, and intellectual ability in the two schools which differed most markedly on the High School Characteristics Index was twenty-three. The largest number of students that could be matched on age, grade, and intellectual ability in all four schools was twenty-five. The reduction in the number of students that could be compared in the four schools greatly decreased the likelihood of obtaining significant differences between schools. However, even though the samples were small, it was felt that suggestions of possible differences might well appear; the suggestions could be examined more intensively with larger samples in further research.

Since a factor analysis of the High School Characteristics Index has not been made, the factors obtained from the College Characteristics Index were used. It is possible that even though the instruments are very similar, a factor analysis of the High School Characteristics Index would have yielded factors not strictly equivalent to those discovered in the College Characteristics Index. In addition, since the High School Characteristics Index has been more recently developed, the normative data is scanty. It was necessary to use norms established from a random sample of 210 students.

Regarding classroom observation, it is obvious that the observations recorded by an investigator entirely familiar with the rationale of the study would be subject to bias. Had independent observers been available, the amount of confidence with which the findings from the classroom observations could be treated would be considerably greater.

Concerning the tests used to measure factors considered important for creativity, it is noted that only three of the many possible factors which contribute to creativity were examined. Although the three factors selected--originality, fluency, and flexibility--were considered by the investigator to be among the most crucial with respect to creativity, they constitute but a small proportion of the total number of factors which probably have an effect on creativity. In his theory of intellect, Guilford has hypothesized that as many as 120 factors might exist, most of which, to some extent, influence an individual's creativity. In addition, the "creativity" tests of the present study measure aptitude traits, as opposed to nonaptitude traits (such as traits of temperament and motivation). Thus, in comparing schools (hypothesis 5), we are examining a limited aspect of creativity. In a sense, we are defining creativity as what the tests measure, and since there is still a great deal of uncertainty about the validity of the tests, the findings should be interpreted cautiously.

There were a number of limitations associated with the selection of the cooperating schools. For practical reasons it was necessary that the criteria for choosing schools be somewhat general and broad; the specific characteristics of creative learning situations were not spelled out in any great detail. In addition, problems of feasibility restricted the choice of schools, such as geographical location, willingness to cooperate in all aspects of the study, and the ability to participate during the months selected for the study. One high creative school, for example, decided not to participate at the last minute because of the difficulties involved in scheduling certain of the tests, making it necessary quickly to obtain the cooperation of another school--one that had not been among the original nominations. However, although they were not as "ideal" as they might have been, it did seem that the schools finally included in the project came reasonably close to meeting the specifications of the study.

CHAPTER II

REVIEW OF THE LITERATURE

The present study incorporates ideas from a number of areas of research. Since the focus is upon creativity, an examination is made of definitions of creativity, the criterion problem, environmental conditions related to the development of creativity, and the relationship to the total structure of the intellect of aptitude traits considered important for creativity. Because the present research is concerned with comparisons of different types of environments, a theoretical model which makes measurement of the psychological environment possible is presented. Certain aspects of personality believed to be relevant to a consideration of creativity are explored. Since what occurs in the classroom is crucial with respect to the development of creativity, ways of observing, recording, and evaluating classroom learning situations are examined.

Creativity

Definition

Because of the lack of agreement concerning how creativity is to be defined, several current definitions are presented. Drevdahl (1956) describes creativity as "the capacity of persons to produce compositions, products, or ideas of any sort which are essentially new or novel, and previously unknown to the producer. It can be imaginative activity or thought synthesis, where the product is not a mere summation. It may involve the forming of new patterns in combinations of information derived from past experience, and the transplanting of old relationships to new situations and may involve the generation of new correlates. It must be purposeful or goal directed, not mere idle fantasy--although, it need not have immediate practical application or be a perfect and complete product. It may take the form of an artistic, literary or scientific production or may be of a procedural or methodological nature" (p. 22). Russell (1960) believes that associative thinking, problem solving, critical thinking and creative thinking represent different foci or purposes in thinking, rather than discrete processes. Creativity is considered to be "a quality thought to be composed of broad continua upon which all members of the population may be placed in different degrees; the factors of creativity are tentatively described as associational and ideational fluency, originality, adaptive and spontaneous flexibility, and the ability to make logical evaluations" (Good, 1959, p. 145).

Torrance (1963) believes that creativity may be defined in many ways. Although it is usually defined in terms of either a process or a product, it may also be defined in terms of a personality or of an environmental condition. He has chosen to define creativity as "the process of sensing problems or gaps in information, forming ideas or hypotheses, testing and modifying these hypotheses, and communicating the results. This process may lead to any one of many kinds of products--verbal and nonverbal, concrete and abstract. Under this definition, it is possible to subsume the major elements of most other definitions. The production of something new or original is included in almost all of them. Creativity is sometimes contrasted to conformity and is defined as the contribution of original ideas, a different point of view, or a new way of looking at problems; whereas conformity is defined as doing what is expected without disturbing or causing trouble for others. Creativity has also been defined as a successful step into the unknown, getting away from the main track, breaking out of the mold, being open to experience and permitting one thing to lead to another, recombining ideas or seeing new relationships among ideas, and so on. Such concepts as curiosity, imagination, discovery, innovation, and invention are also prominent in discussions of creativity, and sometimes one or the other is equated with creativity. Some insist that every act of adaptation may be regarded as creative behavior" (p. 3-4).

According to Harmon (1960) the creative process involves the production of either a new form or a new combination of old elements; the new combination must be either logical or aesthetic or both, and must be related to the solution of a problem. Wallas (1926) states that the art of thought involves improving an already existing form of behavior by conscious effort. He has proposed four stages of the creative process: preparation, incubation, illumination, and verification. Preparation usually involves intense routine, concentration, and hard work; there must be a period of long immersion in the area under consideration. Incubation is a period of germination, analysis, hypothesis, accumulation, and consolidation (Moore, 1956) and often involves restlessness, self-doubt, and near neuroticism. We know least about the illumination or inspiration stage--the most crucial part of the process. It is not likely to occur in individuals who are not thoroughly immersed in their subject, and it usually does not appear at the most appropriate time, Reports by individuals who have experienced marked flashes of insight indicate that often the solution to a puzzle or problem occurs quite unexpectedly, occasionally following a period of time during which the individual was engaged in activities entirely unrelated to the problem. The verification stage is one during which the new production is evaluated and revised.

Taylor (1957) describes five levels of creativity: (1) expressive, (2) productive, (3) inventive, (4) innovative, and (5) emergentive. Expressive creativity is the simplest level (spontaneous drawings of children, for example) and emergentive is the highest (the formulations of an Einstein). Maslow (1958) also describes different degrees of creativity, believing primary creativeness to be the source of new discovery and to have its origin in the unconscious.

The creative person tends to be superior in the cognitive factors believed to be related to creativity, such as originality, redefinition, flexibility, fluency, sensitivity to problems, verbal comprehension, and general reasoning (Russell, 1960). With regard to personality traits, creative individuals tend to be self-acceptant and self-confident. Maslow (1959) states that creative people are not afraid of their own insides--their ability to be acceptant of their own deeper selves makes it possible for them bravely to perceive the true nature of the world and react with spontaneity, without the fear of ridicule or disapproval. Creative individuals are more willing to accept uncertainty in conclusions and decisions. The creative person likes divergent thinking and is more likely to feel that several answers will do instead of thinking toward one right answer. He likes aesthetic expressions (Guilford, 1959). He tends to have a sense of humor (Maslow, 1959).

Creative people need to develop personal independence to a high degree (Whyte, 1956) and prefer to be left alone. Drevdahl (1956) believes that individuality or non-conformity appears to be desirable for creativity. Guilford (1959), however, finds no indication of less cultural conformity in a creative person, including moral aspects. He feels that the hypothesis that originality rests upon an attitude of unconventionality has not been supported. Meadow's experiment (Meadow, 1959) indicated an increase in the personality variable dominance as a result of participation in a problem solving course. High dominant scorers tend to be seen as confident, aggressive, persistent, and planful. They are persuasive, verbally fluent, self-reliant, independent, and exhibit leadership potential and initiative. They tend to be impulsive, ascendent, and confident (Guilford, 1959).

Moore (1956) considers dissatisfaction to be the motivating power behind creativity. He states that nowhere is the phrase, "divine discontent" more applicable; progress comes only when there is dissatisfaction with the status quo strong enough to push toward new solutions. Olsen (1954) says that nobody who is not greatly disturbed will be a creative thinker. Creativity involves a sensitivity to that disturbance, and analysis of it, a persistence in examining it, and Olsen further believes that the decision to take action where irritated is the essence of creativity. A life of creativity requires complete loyalty and dedication (Mayer, 1954) and there must be a willingness to work hard and long (Guilford, 1959). A continuous powerful drive is demanded so that the work will be completed even in the face of frustrating circumstances (Olsen, 1954).

The Criterion Problem

One of the most critical questions in the investigation of creativity is how to identify the creative individual and how to identify the level of creativity achieved (Stein and Heinze, 1960, p. 5). Every study of creativity includes assumptions concerning the identification of the creative person and his work. No single criterion has been used by all researchers. Ghiselin (1959) states that the investigation of creativity has been hampered because the very subject of investigation is ill-defined and elusive. There is no agreement upon what modes of behavior and what characteristics of products can truly be considered creative. Such criteria as judgments of experts or the number of publications are only proximate. There is a need for ultimate criteria of creativity. Ghiselin proposes that there are two levels of creativity. "Creative action of the lower, secondary sort gives further development to an established body of meaning to initiating some advance in its use, as in the example I have given of the extension of the printing of pictures to include the printing of the images of verbal signs. Through relating known concepts or other elements in accordance with known principles by which they have never been ordered before, the secondary kind of criterion extends the range of application of some existing significance, without altering it intrinsically. Or in other words, it initiates wider use of some formulation of meaning already developed within a universe of meaning. And thus it brings to some area that had been dark a familiar light.

"Creative action of the higher, primary sort alters the universe of meaning itself, by introducing into it some new element of meaning or some new order of significance, or more commonly both. The new insight or body of insights thus contributed to the universe of meaning may augment the whole without displacing anything fundamental in it. The quantum theory was such an addition, a new constellation against virtually unconstellated darkness. Or the new insight may supplant all or part of some strong established area of vision. Einstein's relativity theory, for example, reconstellated a large area of understanding. Whatever its relation to the established universe of meaning, the higher sort of creative action invariably brings into the mind an unfamiliar light" (p. 42-43).

Stein and Heinze (1960) list some of the criteria used in the studies summarized in their book. These criteria include: statistical definitions involving deviations on psychological tests; numbers of citations or amount of space devoted to a person in general texts, histories, or biographies of "famous people"; professional judgments; acknowledged eminence, as in the cases of da Vinci and Shakespeare; number of products defined as creative; and the involvement in an activity considered to require creative behavior, such as painting or music. Because some criteria are relatively independent of one another, it is likely that no single criterion of performance is adequate (Taylor and Holland, 1962). Regarding the prediction of creative performance, a review of the research literature in the area suggests the following ordering of predictors with respect to their efficiency: biographical items and past achievements, self-ratings and direct expressions of goals and aspirations, originality and personality inventories, aptitudes and intelligence measures, and parental attitudes (Taylor and Holland, 1962, p. 99).

Creativity and Environment

In what type of environment is creativity most likely to thrive? History furnishes records of cultures where creativity flourished and others where it seemed almost to die out completely. What particular combination of environmental characteristics enabled Fifth Century Athens, Renaissance Italy, and Nineteenth Century England to be so remarkably productive while other cultures produced so little. Assuming a school to be a miniature culture, it would be expected that school environments would differ with regard to stimulating creative productivity. Guilford (1950) stated that society generally frowns upon the unfolding of the individual along lines of his own inclinations. Our schools place too much emphasis upon the memorization of facts, providing the student with inappropriate goals. Even the type of examination we give determines what students will learn, no matter what we say our objectives are. "We all know teachers who pride themselves on teaching students to think and yet who give examinations that are almost entirely a matter of knowledge of facts . . . no creative person can get along without previous experience or facts in our educational system. But let us keep our educational objectives straight. Let us recognize where facts are important and where they are not" (Guilford, 1950, p. 448). After reviewing the literature related to a system of state-wide achievement examinations, Walker (1961) hypothesized that certain types of examinations exert a restricting influence upon curriculum development, teaching methodology, and student initiative and creativity. Excessive evaluation appears to hinder creativity. Whiting (1958) believes that society places too much emphasis upon judging and evaluating--two of the strongest inhibitory factors in the manifestation of creativity. Weisskopf (1951) accuses the schools of emphasizing incessant industry to the point of neglecting to provide the leisure that is necessary for creativity. The emphasis is upon regular study habits rather than fresh initiative.

In discussing the finding that individuals with engineering or scientific training had only half the probability of making an invention compared with others, Guilford (1950) quotes Charles Kettering's comment to the effect that an inventor should be defined as "a fellow who doesn't take his education too seriously." Whyte (1956) charges that such devices as "brainstorming" sessions are extra-curricular "creative" gimmicks and that they evade the real problem. "What makes for creativity is the basic environment: You can't stifle a man ninety-five percent of the time and then expect him, on signal, to suddenly become a different kind of person" (p. 17).

Creativity seems to thrive in a free atmosphere. This is illustrated by the finding that a democratic permissive home life seems to be related to creativity in youngsters (Ferris, 1957). Whyte (1956) notes that the two laboratories (Bell and G. E.) which give the freest rein to their people consistently attract outstanding individuals. A person is creative because he either has the freedom to be creative or because he makes that freedom. "This is a joy that, once tasted, is so precious--it is the antidote to the blight of organization, and in this respect those who are charged with preparing youth for organization have never had a greater challenge" (p. 16).

A number of other factors are believed to encourage creativity. An individual needs free time to develop his own ideas (Ferris, 1957). He needs encouragement in discovering the ways and means to solve problems (Biggs, 1961). There must be an attitude of inquiry and a spirit of research (Strang, 1961). Eyring (1959) describes the environment at Berkeley where "graduate students mingled with outstanding scientists who entertained no doubt that intelligent research was the most important activity in the world. This contagion infected everyone" (p. 9). There must be freedom from fear of criticism (Drevdahl, 1956). The discipline necessary to defer solutions must be encouraged (Gordon, 1956). Provisions must be made for maintaining the integrity of the individual and encouraging empathic understanding by others (Rogers, 1959). There should be favorable student interaction (Strang, 1961). Individuals should be free from excessive external evaluation (Rogers, 1959).

Hilgard (1959) listed five questions to be asked of an educational program purporting to foster creativity: (1) Does the student initiate inquiry on his own, or only inquire along lines set by others? (2) Is there opportunity to exhibit and take responsibility for evidences of creativity? (3) Is work judged according to individual progress instead of group norms? (4) Are provisions made for idiosyncratic specialization? (Is the student allowed, for example, to pursue an interest in the history of boating on the Mississippi River?) and (5) Is there evidence of progressive change away from conformity toward diversity of talent?

Torrance (1963) believes that the weight of present evidence indicates that man prefers to learn in creative ways--to explore, question, manipulate, and experiment. Even though it is frequently asserted that learning by authority is more economical, recent research has indicated that certain types of learning can occur most efficiently in creative ways. Individuals who prefer to learn creatively sometimes are handicapped when they are required to learn by authority. Learning is creative when it involves sensing problems, making hypotheses, testing these hypotheses, revising them, and communicating the results. "Strong human needs are involved in each stage of this process. If we sense that something is missing or untrue, tension is aroused. We are uncomfortable and want to do something to relieve the tension. This makes us want to ask questions, make guesses, or otherwise inquire. Uncertain as to whether our guesses are correct, we continue to be uncomfortable. Thus, we are driven to test our guesses, correct our errors, and modify our conclusions. Once we discover something, we want to tell someone about it. This is why it is so natural for man to learn creatively. It seems so spontaneous that some people call it incidental learning" (p. 13).

Learning by authority involves being told that we should learn and accepting something as true because an authority says it is true. It tends to place emphasis upon such abilities as recognition, memory, and logical reasoning. Creative learning, on the other hand, involves a different set of abilities, such as sensing problems, divergent thinking, and redefinition. Even though research has shown creative thinking abilities to be important in school achievement, frequently these abilities are not needed or required in classrooms where learning by authority predominates.

The Improvement of Creative Thinking Abilities

A number of deliberate attempts to train for creativity have been reported. Maltzman (1958) found that prior exposure to uncommon responses resulted in an increased ability to produce uncommon responses, thus increasing an individual's ability to solve problems. Meadow and Parnes (1959) reported that a course in creative problem solving resulted in an increase on two measures of quantity of ideas, three out of five measures of quality of ideas, and the personality trait dominance--measures relating to creativity. In a study of the effects of brainstorming instructions on creative problem solving by both trained and untrained individuals (Parnes and Meadow, 1959), it was discovered that a greater number of good quality ideas were produced under brainstorming instructions than under non-brainstorming instructions and that individuals with creative problem solving instructions which emphasized brainstorming techniques produced a larger number of high quality ideas when using the technique than did untrained subjects. In experiments designed to study the effects of extended effort in creative problem solving, Parnes (1961) reported that more good ideas appeared in the last half of an individual's total output of ideas than during the first half. A relationship also was found between total quantity and quality scores. When subjects trained in the use of the brainstorming principle of deferred judgment produced ideas relating to the same problem, a trend toward increasingly large proportions of good ideas with increased quantity was noted. The results indicated that extended effort in producing ideas related to creative thinking problems resulted in a greater proportion of good ideas in the later portions of the period.

Using a variety of training methods such as Arnold's "other-world" technique, Osborn's "brainstorming," and traditional approaches, Nicholson (1959) found a significant gain in the production of remote and uncommon ideas. The increase in quality of ideas was not matched by an increase in quantity of ideas. His interpretation of the findings included the idea that training by a variety of methods can bring about improvement in the production of remote or uncommon ideas.

Using activities designed to stimulate creative thinking abilities suggested by Wilson (1958), Walker (1962) conducted an experiment with seventh grade pupils in which the experimental group was given approximately 200 minutes of experience with activities designed to promote sensitivity to problems, ideational fluency, originality, and redefinition. Brainstorming techniques were employed and an attempt was made to increase the pupils' understanding of creativity. A comparison of pre- and post-test results indicated that the experimental group performed significantly better on tests of creativity following the experimental period.

Creativity and the Structure of Intellect

Since the present study draws heavily upon Guilford's unified theory of human intellect, especially with regard to aptitude traits related to creativity, a description of the theory is presented. This theory (Guilford, 1956; Guilford and Merrifield, 1960) employs a three-dimensional "structure of intellect" to arrange intellectual abilities into a single system. In his first factor-analytic study of creativity, Guilford hypothesized that several distinct abilities would be found. The results supported the existence of such factors as sensitivity to problems, word fluency, ideational fluency, associational fluency, expressional fluency, spontaneous flexibility, adaptive flexibility, and originality. Surprisingly, two hypotheses of expected factors were not substantiated; no unitary ability to analyze or to synthesize was found.

In addition to creativity, Guilford had set out to explore all aspects of intelligence, including abilities in the areas of reasoning, evaluation, planning, and problem solving. Creative abilities take on more meaning when studied in relation to other kinds of abilities. Factor analysis has assisted in the classification of intellectual abilities by indicating three meaningful ways of arranging factors of intellect. One way includes the kind of operation required or performed. Five of these fundamental kinds of operations are identified: (1) cognition, (2) memory, (3) divergent thinking, (4) convergent thinking, and (5) evaluation. Cognition involves discovery or recognition. Memory is retention of what has been cognized. Divergent and convergent thinking are the two productive-thinking operations which produce new information from known or remembered information. Divergent thinking includes searching, seeking variety, and new directions. Convergent thinking leads to the one right answer or the best or conventional answer. Evaluation accounts for decisions regarding appropriateness or suitability of what we know, remember, or productively think.

The second classification of intellectual factors concerns the kind of material or the content. Factors involving three kinds of material are known: (1) figural, (2) symbolic, and (3) semantic. A fourth kind of content, designated "behavioral" content, has been added on a purely theoretical basis. Figural content consists of concrete materials with such properties as size, form, color, or texture--things we see, hear, or feel. Symbolic content includes letters, digits, and other conventional signs. Semantic content involves verbal meanings or ideas.

Products, the third classification, are generated when certain kinds of operations are applied to certain kinds of content. Six general kinds of products have been identified: (1) units, (2) classes, (3) relations, (4) systems, (5) transformations, and (6) implications. It is believed as a result of factor analysis that these are the only basic kinds of products that one can know. In other words, any item of information should be capable of being classified into one of these categories.

Guilford has combined the three classifications of intellectual abilities into what he calls the "structure of intellect," a cubical model which provides a unified theory of classification. Each kind of classification becomes a dimension of the model. Each type of content is capable of being combined with each kind of operation, and these combinations can be combined with each kind of product. Figure 1 indicates how the classifications relate to one another.

More than half of the ninety different abilities pictured in the model have been identified. Such creative thinking abilities as fluency, flexibility, and originality fit into the category of divergent thinking. On tests of these abilities there are no single right answers--variety is what counts. Ideational fluency, as

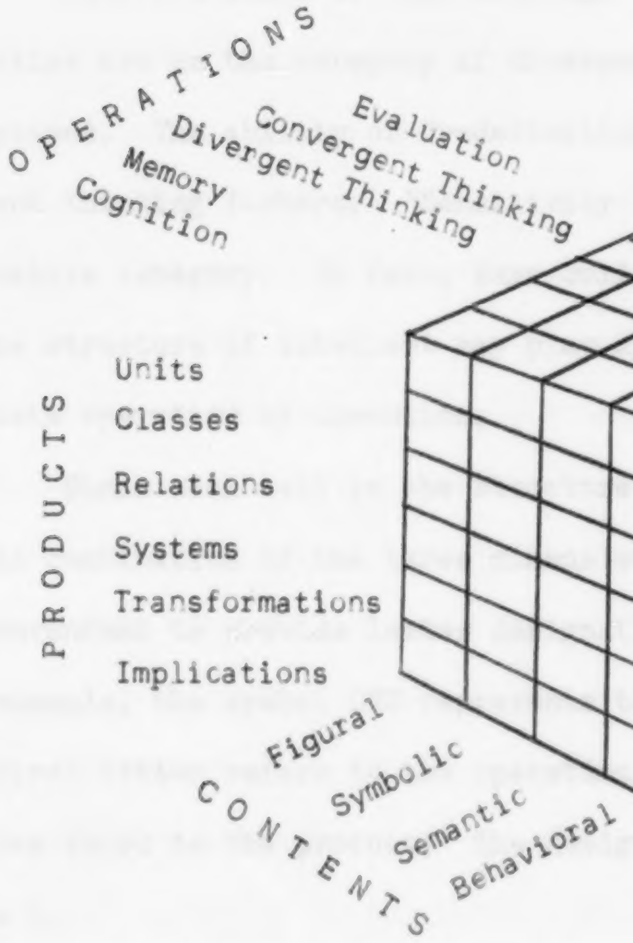
OPERATIONS
Evaluation
Convergent Thinking
Divergent Thinking
Memory
Cognition
PRODUCTS
Units
Classes
Relations
Systems
Transformations
Implications
CONTENTS
Figural
Symbolic
Semantic
Behavioral

Fig. 1.--Theoretical model for the complete "Structure of Intellect" (Guilford and Merrifield, 1960).

presented in the model, is interpreted as the ability to produce divergently a number of semantic (meaningful) units (ideas). The divergent production of classes is equated with spontaneous flexibility. In the alternate uses test, for example, subjects who shift from class to class score highest. Originality is the ability to produce a variety of transformations. The Plot Titles test involves unusual interpretations of the story or the individuals in the story, resulting in meaningful reinterpretations or transformations.

Guilford believes that although the most obviously creative abilities are in the category of divergent thinking, there are some exceptions. The ability of "redefinition" is classified with convergent thinking factors. "Sensitivity to problems" is placed in the evaluative category. In fact, says Guilford, most of the abilities in the structure of intellect may play appreciable roles in the complete operation of invention.

Since each cell in the structure of intellect represents a unique combination of the three dimensions, Guilford (1960) has found it convenient to provide letter designations for each of the factors. For example, the symbol CFU represents the cognition of figural units. The first letter refers to the operation, the second to the content, and the third to the product. The designation system is shown in Table 1.

TABLE 1

A CODING SYSTEM FOR THE FACTORS IN THE STRUCTURE OF INTELLECT

Operations (First Letter)	Contents (Second Letter)	Products (Third Letter)
C Cognition	F Figural	U Units
M Memory	S Symbolic	C Classes
D Divergent production	M Semantic	R Relations
N Convergent production	B Behavioral	S Systems
E Evaluation		T Transformations
		I Implications

DMT stands for the divergent production of semantic transformations. This is the designation for the factor "originality." Tests which measure this factor include the following: Plot Titles (write clever titles for story plots); Consequences (list remote consequences of certain changes); and Quick Responses (provide uncommon responses for stimulus words). For tests of originality a standard of quality has to be established for acceptable responses. The Plot Titles test, for example, contains a very short story. The examinee is instructed to list as many titles as he can think of for the plot and that the titles can be either clever or not; the only requirement is that they be related to the plot. One plot is about a missionary who has been captured by cannibals in Africa and placed in a pot for boiling. He is given the opportunity to save himself by promising to become the husband of a princess of the tribe. When he refuses he is boiled to death. The responses to this test are scored either clever or non-clever. Titles which would be classified clever are: Pot's Plot, Pot Luck Dinner, Stewed Parson, Goil or Boil, a Mate Worse Than Death, He Left a Dish for a Pot, Chaste in Haste, or a Hot Price for Freedom. This same test provides a score for the factor "ideational fluency," designated DMU in the structure of intellect coding system. Such titles as the following would be classified as non-clever and would contribute to the ideational fluency score: African Death, Defeat of a Princess, Eaten by Savages, The Princess, The African Missionary, In Darkest Africa, and Boiled by Savages. Other tests of ideational fluency include those which require the examinee to write as many ideas as possible about a given topic, to list as many words as possible about a given topic, to list the names of things that fit certain categories (for example, things that are round or that could be called round), or to list the consequences of certain events.

The divergent production of semantic classes, DMC, designates the factor of "spontaneous flexibility." This factor is measured by such tests as the Brick Uses (write a variety of kinds of uses for brick), scored for flexibility, and the Alternate Uses test (list different uses for common objects).

It is possible to specify the type of tests that would be needed to measure factors which have not already been identified but which are predicted by the structure of intellect. This is facilitated by considering the types of tests for known abilities in parallel sections of the structure of intellect system. More than twelve factors have been discovered which find places in the system where they were hypothesized to exist.

Psychological Environment

The psychological environment may be defined as a complex of stimuli that press upon the individual and to which his behavior constitutes a response (Stern, 1961). Since each of us views the world privately, these pressures tend to be unique and private. When we observe events in which someone else is participating, we also tend to classify the discrete events on the basis of seemingly common elements. In a school where written permission to be away over night is required, where students often are kept waiting when they have appointments with faculty members, where freshmen must take orders from upper classmen, and where the administration does not tolerate student protest, we may feel justified in concluding that there is a strong press at that school toward student "abasement."

H. A. Murray (1938) attempted systematically to classify the environmental pressures and the way individuals attempt to structure their environment. He used the term "press" for external pressures and the term "needs" for their internal counterpart. Needs are inferred from the typical activities in which individuals engage; press is inferred from typical activities that are done to the individual. The student with high abasement needs would be comfortable in a school with a strong press toward abasement. The strength of his abasement need could be estimated from the extent to which he enjoys taking the blame for something he did not do, finds pleasure in describing his failures, tries to see how he was to blame when involved in an argument, and hesitates to do anything about it when someone takes advantage of him.

To measure needs, Stern and others developed the Activities Index. To measure environmental press, a number of Characteristics Indexes were devised. Both types of instruments consisted of 300 test items (thirty scales with ten items for each scale). The instruments are parallel: the Activities Index describes commonplace daily activities similar to those illustrating abasement above; the Characteristics Index describes activities, policies, procedures, attitudes, and impressions that might be characteristic of various types of settings. The Activities Index and the College Characteristics Index have been administered to students from a large number of colleges. The High School Characteristics Index has been more recently prepared. Other Indexes in existence are the Evening College

Characteristics Index and the Organizational Climate Index (Stern, 1963a).

In the past ten years these indexes have generated a considerable body of research. Pace and McFee (1960) state that the concept of environment covers a range from the psychologist's idea of external stimuli to the anthropologist's idea of culture. Too often educational investigators have been concerned with the impact of only a small segment of the learning environment, such as class size or teaching method, with inconclusive results. More fruitful research requires a broader view of school environment--one which treats it as a complex social system, a network of interactions, or even a miniature culture.

In a summary of research generated by the Syracuse Indexes, Stern (1963b) reports that student samples tend to be consistent with those of more specialized samples at the same institution and that there is as much agreement in student response to subjective and impressionistic scale items as there is to items which can be readily verified. There appear to be distinctive relationships between scale profiles and the types of institutions samples. It was discovered that the majority of schools have high scores involving aspects of constraint and dependency. Denominational institutions exhibit the greatest emphasis on conformity; the so-called elite private liberal arts schools the least. These private schools also score highest in the intellectual press area. A third group of schools "constitute the remaining strongholds of a collegiate tradition in American higher education immortalized by Scott Fitzgerald: fountains of knowledge where students gather to drink. Although this species has been on the decline since the 1930's, it is apparently saved from total extinction at a few large state preserves. (To borrow a phrase from socialogist Martin Trow). These schools are described by their students as sources of social pleasure and togetherness, although lacking in academic strength and direction " (Stern, 1963b, p. 8-9).

A study of high school environments found quite distinctive differences among high schools (Stern, 1961). Quite pronounced differences among four types of high schools were revealed. Private schools appeared to offer greater intellectual stimulation than public schools, even though the public schools were noted for high quality programs. Parochial schools were characterized by an emphasis placed on dependency and conformity, a characteristic found to describe denominational colleges, regardless of religious affiliation. The two public high schools included in the study indicated fairly consistent trends toward personal autonomy. This same study found that although they describe a satisfying high school experience and indicate their high hopes for a far more challenging experience in college, students are probably destined to be disappointed. "The students come expecting to learn; they learn not to expect so much" (p. 58).

Personality

Any consideration of student ecology must take into account the personalities of the teachers. One aspect of personality which would seem to have an impact upon the learning situation is the concept of attitudinal rigidity and the related concepts of authoritarianism, intolerance of ambiguity, dogmatism, and stereopathy. Such studies as those of Lewin (1939) point to the conclusion that the most appropriate type of classroom environment is the democratic, nondirective, student-centered one. Yet research tends to indicate that with regard to the acquisition of knowledge there are no clear-cut advantages of the student-centered approach over the teacher-centered approach. Because of the conflicting findings regarding student attitude toward student-centered as opposed to teacher-centered courses, the possibility that the personalities involved in the learning situation determine, to a great extent, the overall effectiveness of the situation has been recently investigated. Neel (1959), for example, found that medical school seniors scoring high on the California F-Scale tended to experience more difficulty in learning ambiguous material but not in learning factual subject matter. In addition, the hypothesis that the more authoritarian students would have difficulty learning material which involved humanitarian philosophy and the need for understanding people approached significance. Wispe (1951) discovered that although student-centered groups were no more effective on a final examination in a psychology course than were subject-matter-centered groups, most of the students did not like the non-directive sections. It was further discovered, however, that those students favorably disposed toward personal independence tended to favor the student-centered sections and to be critical of the subject-matter-centered sections. On the other hand, students who exhibited a stronger need for direction disliked the student-centered sections. These studies point to the possibility that in situations where the teaching method is congruent with certain aspects of student personality, a more efficient and satisfying experience would be likely to occur. Probably the authoritarian student taught by an authoritarian teacher in a subject-centered, teacher-directed instructional situation would experience satisfaction and be successful in the acquisition of knowledge. On the other hand, a non-authoritarian student taught by a non-authoritarian teacher in a permissive, student-centered classroom also would learn well and be favorably disposed toward the learning situation. One would expect a less satisfying and efficient learning experience in situations where there is conflict among these features of the environment.

A personality variable that appears to be related to the manner in which an individual interacts with his environment is authoritarianism. Adorno and others (1950) identified attitudes of authoritarianism and non-authoritarianism, using the F-Scale and other measures of attitudinal rigidity. Assuming that any hypothetical personality type may be employed as a model, Stern, Stein, and Bloom (1956) attempted to synthesize a purely highly hypothetical personality model. A "stereotype" syndrome was hypothesized, described clinically, and identified by means of the Inventory of Beliefs. Stern developed this instrument in conjunction with the Cooperative Study of Evaluation in General Education (Dressel and Mayhew, 1954). Form T consists of 100 items relating to ideas, social institutions, social groups, interpersonal relations, and self-concept, to which the subject signifies on a four-point scale his agreement or disagreement. The instrument incorporated aspects of the theories of Adorno and others (1950) who had hypothesized that some individuals are consistently rigid, non-adaptive, anxious, uncomfortable, and ethnocentric, and are generally acceptant of stereotyped statements. At the opposite extreme are individuals who tend to reject stereotyped statements and who might be described as comfortable, adaptive, flexible, and outgoing (Mayhew 1958).

The synthetic model of the stereopath (authoritarian) describes "a hypothetical individual who may be characterized in terms of depersonalized and codified social relations, pervasive acceptance of authority as absolute, inhibition and denial of impulses, and rigid orderliness and conformity in behavior. He is assumed to have had a stern disciplinary upbringing from at least one parent. Fearful of this authoritarian figure, the child submits overtly, exaggerating the unquestioned excellence of this parent and repressing the tremendous hostility which cannot be directly expressed in consciousness" (Stern, Stein, and Bloom, 1956, p. 189). The second model, the "nonstereopath" (non-authoritarian), seems "to be represented by highly personalized and individualized social relationships, pervasive rejection of authority figures, spontaneous and acceptant impulse life, and nonconforming flexibility in behavior. This type is seen as the product of homes where parents tend to be permissive, nurturant, or even overprotective of their youngsters. Self-importance is established early at the expense of parental respect or thoroughgoing submission" (p. 192).

The structure of the Inventory of Beliefs was developed in terms of four levels of interaction regarding individual relations: (1) ideas and institutions; (2) social groups; (3) individuals, interpersonal relations; and (4) self. The test items were selected from thousands of cliches, pseudo-rational statements, and inappropriate generalizations. A sample item from Form T is: "The twentieth century has not had leaders with the vision and capacity of the founders of this country." It can be seen that the stereopath syndrome closely parallels the ethnocentrism, fascism, and political-economic conservatism scales developed by Adorno and his associates (Adorno and others, 1950). However, the broader coverage of the Inventory appears to obliterate the differences among the California Scales, apparently representing the area of common overlap among the California Scales.

The Inventory of Beliefs assesses two additional syndromes: the "rational" syndrome and the "irrational" syndrome. A "rational" appears to be an individual "whose social relationships are distant and impersonal, cathecting ideas rather than persons. As children they experience parental fallibility. Possibly the parents were dead, absent, or simply indifferent. In any event, no integrated relationship would seem to have been established between the superego and the ego. The rules by which one ought to live have not been successfully juxtaposed with perceived reality, leading to the divorcing of private ethics from social interactions. Occurences seem unpredictable and inexorable. The child has perceived both himself and his parents to be at the mercy of external forces. The unpredictability and strength of this alien, external control precludes active resistance, resulting in passivity, resignation, and futility. In detached fashion the child is left to speculate on the inevitability and insignificance of existence, substituting intellectualization for interaction. Anxiety is therefore diffused, and the self seen as puny and weak" (Stern, Stein, and Bloom, 1956, p. 197). With regard to the "irrational" syndrome, the only thing known at the present time is that their appearance has been restricted to younger, less well-educated individuals (Stern, 1962). On the Inventory of Beliefs, rationals tend to reject both types of idiological generalization (nativistic-fundamentalistic and internationalistic-relativistic), whereas irrationals accept either type.

It was discovered that institutions differed with regard to the proportions of each syndrome in the student body. High school and Southern college students tended to include greater numbers of irrationals. There was an equal division between authoritarians and rationals at West Point. Psychologists, theological students from liberal denominations, and Reed College students were divided between anti-authoritarians and rationals. The student body at Syracuse University contained twenty percent authoritarians and ten percent anti-authoritarians, whereas students at the University of Chicago reversed these percentages. In addition, studies of comparisons among the syndromes indicated many statistical differences. In a study of classroom behavior of authoritarians, anti-authoritarians and rationals, Stern and Cope (Stern, 1962) found that a citizenship course section composed exclusively of authoritarians differed markedly from two other sections, one composed of anti-authoritarians and a third composed of rationals. Comments from the diary of the instructor are as follows:

> Authoritarians.--Very difficult to get discussion, although direct questions indicate they are well informed on the text . . . a constant temptation to "lecture" rather than discuss . . . split between those who despise the common man, . . . and those who are very democratic but feel repulsed, at their level of morality, in working for a better world.
>
> Anti-authoritarians.--This class is becoming my delight. They take nothing for granted, yet their criticism and controversy is friendly. . . . They sassed the professor; the slightest disciplinary remark lead to a retort that this would lead to frustrations.

> Rationals.--This group is going to seed, and it is probably my fault. They seem to have a sense of self-assurance and security, and a "we can't lose out" kind of confidence. . . I cannot to date get anything but bland cooperation: creative, critical thought or self criticism is hard to find here. Their quiz answers are often correct, but not creative (Stern, 1962, p. 698).

A further reason for selecting a measure of attitudinal rigidity for the purposes of the present study was that this dimension of personality might be considered an indirect measure of creativity. In fact, there is some evidence that a measure of attitudinal rigidity might serve as a rough index of creativity. Fleming and Weintraub (1962) discovered a moderately negative relationship (r = -.41) between rigidity and verbal creativity among children. A modified revised California inventory was used as the measure of rigidity and correlated with such creative thinking tests as Impossibilities, Unusual Uses, Situations, Common Problems, and Improvements from the Torrance Compendium. Other studies (Barron, 1958; Guilford and others, 1957) had related rigidity to creativity among adults. Since the Inventory of Beliefs measures a syndrome similar to that measured by other tests of attitudinal rigidity, it also might be tentatively considered as an indirect indication of creativity. It might be expected that individuals with high nonstereopathic scores would tend to be more creative than individuals with high stereopathic scores.

Classroom Observation

Since the present study involved classroom visitation and observation, various methods of observing and recording classroom behavior were investigated. In this area significant contributions have been made by Anderson and Brewer (1946); Flanders (1960); Medley and Mitzel (1958, 1959) and Ryans (1960, 1961a, 1961b). Obtaining reliable and efficient measures of classroom behavior constitutes one of the most difficult problems in education (Medley and Mitzel, 1958). Ratings by superiors tend to be biased, subjective, and confusing. The present study makes use of Anderson's dominative-integrative paradigm in relation to hypothesizing the type of classroom environment most likely to foster creativity. It seems obvious that a classroom with an integrative orientation would much more likely educe creativity than one characterized by dominative behavior. Franseth (1963) employs Anderson's model in describing the "open system of education"--a description considered synonymous with the high creative school for the purposes of this study.

The Observation Schedule and Record

Medley and Mitzel (1958) developed an instrument called the Observation Schedule and Record, a technique which included both a method of observing and a method of recording classroom behavior in a reasonably objective manner. It was designed to make possible the recording of a wide variety of classroom activities. With well-trained observers it should be possible to reconstruct from a completed Observation Schedule and Record a reasonably detailed picture of what transpired during the period of observation. The Observation Schedule and Record contains an activities section; a grouping section; a signs section ("sign" of hostility, for example); a materials section; an expressive behavior section (teacher asserts authority to maintain order, for example); and a subject section. Although designed originally for elementary teaching, the Observation Schedule and Record has been adapted for the secondary level.

Factor analysis identified three orthogonal factors: (1) emotional climate, having to do with hostility; (2) verbal emphasis, having to do with verbal and traditional classroom activities; (3) and social structure, having to do with pupil-initiated activities. It was concluded that the Observation Schedule and Record could be used effectively by relatively untrained observers and that the instrument showed promise for contributing to the solution of many educational problems. In a study which made use of the Observation Schedule and Record to find out what kind of classroom behaviors were associated with what type of effectiveness, it was discovered that pupil-teacher rapport was related to emotional climate and quite likely to verbal emphasis in classroom behavior. Supervisors tended to judge most effective those teachers who had friendly classroom environments. Teachers who regarded themselves effective in teaching basic skills gave less emphasis to small, autonomous group work (Medley and Mitzel, 1959). Another study (Wilk and Edson, 1962) found that student teachers who preferred the lower grades had a higher classroom verbal emphasis score and a significantly better classroom emotional climate score than those who preferred the upper grades.

The Classroom Observation Record

David G. Ryans served as director of the Teacher Characteristic Study, a research project consisting of approximately 100 separate studies. This project, sponsored by the American Council on Education evolved from problems associated with obtaining reliable data concerning personal and social behavior patterns of teachers for the National

Committee on Teacher Examinations, an organization originated by the American Council on Education. The study was designed to obtain information on important teacher characteristics and to devise instruments for evaluating and predicting teacher behavior. The specific objectives were: "(1) To identify, analyze, and describe some of the patterns of teachers' classroom behavior and teachers' attitudes, viewpoints, and intellectual and emotional qualities. (2) To isolate and combine into scales significant correlates (provided by responses to self-report inventories concerned with teachers' preferences, experiences, self-appraisals, judgments, and the like) of some of the major dimensions of teacher behavior--scales which might be used in evaluating and predicting important teacher characteristics. (3) To compare the characteristics of various groups of teachers when they had been classified according to such conditions as age, experience, sex, size of school, cultural climate of the community, and the like" (Ryans, 1960, p. 369).

One of the major instruments used in this study was the Classroom Observation Record, an assessment record designed to describe behaviorally and operationally the important dimensions of teacher and pupil behavior. It consists of four dimensions of pupil behavior and eighteen dimensions of teacher behavior, each of which is rated on a seven-point scale. An example of a pupil behavior is the "apathetic-alert" dimension. The glossary which defines each of the dimensions measured by the Classroom Observation Record describes the apathetic pupil as listless, bored-acting, and restless; his attention wanders, he enters into activities half-heartedly, and he is slow in getting under way. Alert behavior, the opposite of apathetic behavior, characterizes the pupil who appears anxious to recite and participate, watches the teacher attentively, works with concentration, seems to respond eagerly, and is prompt and ready to take part in activities when they begin.

In a study designed to examine relationships between trained observers' assessments of pupil and teacher behavior, high positive relationships were found between "productive pupil behavior" (assessments reflecting pupil alertness, responsibility, confidence, and initiative) and observers' assessments of patterns of teacher behavior characterized by: (1) understanding, friendly classroom behavior; (2) organized, businesslike classroom behavior; and (3) stimulating, original classroom behavior. For secondary school classes, however, although relationships were found, they tended to be considerably lower than for elementary classes. Whereas the highest correlation between the pupil behavior index and teacher behavior patterns for elementary school classes was .83, at the secondary level the highest correlation was only .26. A tendency was found at the secondary level for the stimulating, original teacher classroom behavior pattern to show a slightly higher correlation with pupil behavior than the other teacher behavior patterns (Ryans, 1961a).

The Teacher Characteristics Study identified three major clusters of observable teacher behaviors which were used throughout the study. These three principal dimensions are as follows:

Pattern X_o: Understanding, friendly versus aloof, egocentric, restricted teacher behavior.

Pattern Y_o: Responsible, businesslike, systematic versus evading, unplanned, slipshod teacher behavior.

Pattern Z_o: Stimulating, imaginative, surgent or enthusiastic versus dull, routine teacher behavior.

In addition, productive pupil behavior, P_o, was measured by a pupil behavior index which combined the average assessments on all four pupil behavior dimensions into a single value.

The present study is primarily concerned with teacher pattern Z_o (stimulating, imaginative versus dull, routine), since this not only showed the highest correlation with pupil behavior, but also would appear to have a bearing upon student creativity. A factor analysis of the Classroom Observation Record for secondary schools resulted in the extraction of six factors. Factor V refers to originality, adaptability, ability to stimulate, and possibly democratic-openmindedness versus dullness, inflexibility, and stereotypy. The teacher scoring high on this factor is characterized as original, resourceful, imaginative, adaptive, democratic, and stimulating. Factor V is equated with teacher pattern Z_o. The teacher behavior dimensions with the highest factor loadings on Factor V are: autocratic-democratic (.47); dull-stimulating (.28); stereotyped-original (.40); inflexible-adaptable (.35); and narrow-broad (.30). For purposes of the present study, it would thus appear that teachers scoring high on these dimensions would more likely have a positive influence upon pupils in their classes with regard to fostering similar behavior. At the elementary level this influence probably would be considerable; at the secondary level it would be considerably less.

It should be noted that the approach to pupil behavior employed using the Classroom Observation Record was a direct one.

The immediate behavior of the pupils and the teachers was observed in their regular classrooms. Ryans (1961a) noted that directly observed pupil behavior in process might be quite different from the products resulting from pupil behavior. "Researchers in the area sometimes indicate it is more important and relevant to judge pupil behavior in terms of its products--the measurable skills, understandings, and attitudes acquired by pupils--than merely to assess samples of ongoing pupil behavior. After all, they point out, it _is_ the end product we are teaching for.

"Now the method employed in the present research does involve an apparently reasonable, though certainly unproved, assumption: Namely, that pupils who carry on their classroom activities in certain ways will acquire intended learning more successfully than pupils who behave or act in other ways. But the fact remains that education is interested ultimately in pupil behavior and in teacher behavior for the results produced; immediate behavior is of interest only insofar as it is a means to an end. So, one might contend that the pupil behavior with which this paper deals is of only incidental concern. The author does not agree, but it is a point of methodology that should be made clear at the outset" (p. 83).

Summary

A review was presented of the literature related to the major areas of concern of the present study: creativity, psychological environment, personality traits believed to be related to creativity, and methods of observing, recording, and evaluating classroom performance. The theories of Guilford (unified structure of intellect), Stern

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(institutional environment), Stern (attitudinal rigidity), and Medley, Mitzels, and Ryans (classroom behavior) were presented. The major portion of the review was devoted to a discussion of creativity: definition, the criterion problem, environmental influences, the improvement of creative abilities, and a theoretical model for describing and measuring creative aptitudes. A theoretical framework for describing and measuring institutional environments was discussed. Concepts related to attitudinal rigidity were examined and a theoretical framework for measuring related syndromes was explained. Methods for observing and evaluating classroom activities and behavior were reviewed, together with research generated by instruments that have been developed in this area. An attempt was made to show how each of the areas presented in this review related to the present study of creativity.

CHAPTER III

DESIGN AND PROCEDURES

Population and Sample

Four high schools were involved in the study. The schools were roughly comparable with regard to socio-economic class and student ability in the judgment of the panel of individuals who recommended schools for study. Two of the schools, designated "high creative" schools, were judged to be the type in which creativity finds a favorable climate for development. They were considered to have the characteristics of the open system of education described by Anderson (1961) and Franseth (1963). The open system of education is defined as one which accepts uniqueness in perception and thinking; and which permits originality, experimentation, initiative, and invention. It is the opposite of the closed system where the concern is mainly with acquiring a body of knowledge in memorizing facts; where the curriculum is prescribed and deals with fixed-answer problem solving; and where the student learns to follow directions and to do what he is told.

The panel of individuals involved in making recommendations for schools to be investigated consisted of two professors of secondary education, one professor of psychology, two individuals involved in programs for gifted students, and one high school principal.

From the list of recommendations, four schools were selected to be included in the study. The four schools were assigned the following fictitious names: (1) Thornton High School, (2) Waverly High School, (3) Dover High School, and (4) Elmwood High School. The schools are referred to by these fictitious names throughout the present study. For two of these schools, designated Dover High School and Waverly High School, agreement was unanimous among judges who were familiar with the schools that they fit the criteria of high creative schools. The other two high schools included in the study, designated Thornton High School and Elmwood High School, were not judged to be noteworthy with regard to the criteria for the high creative school. However, they were considered to have excellent traditional programs. The first of these, Elmwood High School was considered to be decidedly more tradition-oriented than the second, Thornton High School. All four schools were located in large Eastern metropolitan areas. Most of the students came from middle-class homes, with a sprinkling of upper- and lower-class children. The students were above average in intellectual ability, and at least eighty percent of the students were college-bound.

Thornton and Waverly were public schools; Dover and Elmwood were private schools. Thornton, Waverly, and Dover were coeducational day schools; Elmwood was a boys' boarding school. Since nearly all of the students at Elmwood lived in campus dormitories and were under the jurisdiction of school authorities twenty-four hours a day, exposure to school life was more complete at Elmwood than at the other three schools.

Approximately sixty students in each of the four schools were involved in the study. Although an attempt was made to obtain samples of comparable intellectual ability, because of administrative difficulties, this was not possible. The mean intelligence test score for the samples ranged from 111.7 at Elmwood to 126.1 at Thornton. Table 2 provides comparative data for the samples from the four schools. At Thornton and Waverly the sample consisted entirely of twelfth graders, whereas at Dover and Elmwood it included a mixture of eleventh and twelfth graders. The proportion of male to female students ranged from 35 percent males at Waverly to 100 percent males at Elmwood. The mean age ranged from 16.0 at Dover to 17.0 at Waverly.

TABLE 2

CHARACTERISTICS OF STUDENT GROUPS IN FOUR HIGH SCHOOLS

School	Average Age	Percent Grade 12	Percent Grade 11	Percent Male	Mean IQ
Thornton (N = 50)	16.7	100	0	46	126.1
Waverly (N = 60)	17.0	100	0	35	118.0
Dover (N = 55)	16.0	47	53	55	123.2
Elmwood (N = 97)	16.8	58	42	100	111.7
All Schools (N = 262)	16.6	69	31	65	118.4

Approximately thirty teachers in each of the four schools were selected to take the Inventory of Beliefs. The principals in each of the schools were asked by the investigator to select teachers who were in closest contact with the students participating in the study, in other words, those teachers who were most familiar with and had the greatest influence upon the students. No attempt was made to control for ability, sex, or age in the teacher sample. It is noted, however, that the faculty at Elmwood was predominantly male and that the average age of the teachers at Waverly was somewhat below that for the other three schools.

Approximately twenty classrooms in each of the four schools were selected for classroom visitation. Preference was given to eleventh and twelfth grade classes, honors classes, specialized classes such as philosophy or economics, and, in general, to those classes which contained members of the student sample. At three of the four schools, a schedule for visitation was distributed to the teachers so that they knew beforehand when their classes would be visited. At Thornton High School no advance notice was given to the teachers, except for the general announcement that certain of the classes would be visited during the week.

From the sample of sixty students in each school who were administered the High School Characteristics Index and the creativity test battery, the fifteen students judged to be most highly creative were designated to write essays about their school experience. Because it was not possible to have the results of the creativity battery scored in time to use the results in making the selections, it was decided to use teacher and peer ratings. The rating sheet used for this purpose is presented in Appendix A. The investigator compiled the results of approximately thirty ratings in each school, half of which were made by teachers and half by students. The rating sheet used to make the selections included both aptitude and non-aptitude traits considered to be important for creativity.

From the foregoing it can be seen that a number of different groups in each of the four schools were involved in the study. Sixty students were selected to take the High School Characteristics Index and the Creativity Tests. Thirty teachers were administered the Inventory of Beliefs. Approximately twenty classrooms were selected for visitation. Fifteen students in each school were selected to write essays about their school experience. In addition, administrators, teachers, and students contributed additional information through informal conversations.

Data and Instrumentation

To test hypothesis 1 the High School Characteristics Index was used to measure the environmental press of the four high schools. This 300-item instrument, which evolved from Murray's Needs-Press Paradigm, has thirty scales of ten items each. Since it parallels the College Characteristics Index, the eleven first-order factors and two second-order factors of the College Characteristics Index could be adapted to the High School Characteristics Index. Each of the thirty scales measures an hypothesized area of the environmental press: the "abasement-assurance" scale, for example, measures self-depreciation versus self-confidence. These scales co-vary together to form first- and second-order factors; for example, the scales of "objectivity," "assurance" and "tolerance" make up the factor designated "student dignity."

To test the hypothesis that teachers in the high creative schools are less stereopathic than teachers in the traditional schools (hypothesis 2), the Inventory of Beliefs, a 100-item instrument which purports to divide individuals along authoritarian--non-authoritarian lines was used. The stereopathic (authoritarian) individual tends to be rigid, conforming, dogmatic, anxious, and uncomfortable. He finds it difficult to shift mental sets required for varying types of problems. The non-stereopathic (non-authoritarian) personality tends to be relaxed and comfortable and finds it unnecessary to be on the defensive. He can handle abstract materials and can suspend judgments without experiencing undue anxiety. It was also expected that teachers in the high creative schools would tend to be more rational. Individuals who score high on the rational dimension tend to be consistent in their beliefs, whereas individuals who score high on the irrational dimension tend to be inconsistent.

Two instruments were used in connection with the hypothesis that the classrooms in the high creative schools would tend to promote initiative and originality (hypothesis 3). The first of these, the Observation Schedule and Record, developed by Medley and Mitzel (1958), was used to record classroom activities in a fairly objective manner. The Observation Schedule and Record requires one-half hour to administer. The front side makes provisions for recording whether or not certain activities take place during the first five minutes of observation. For example, if the teacher answers a pupil question, a check mark is made in the appropriate column. If the teacher uses sarcasm or yells or shows hostility this also is checked. The reverse side of the Observation Schedule and Record provides an opportunity to tabulate the numbers of times certain behaviors occur. Each time the teacher makes a pupil-supportive comment, for example, this is tabulated. At the end of each five-minute period of time the Observation Schedule and Record is turned over; during the course of thirty minutes of observation there are three five-minute sections devoted to indicating whether or not certain activities occur, and three periods for recording how many times certain behaviors occur.

The second instrument, the Classroom Observation Record (Ryans, 1960) has provisions for rating four dimensions of pupil behavior and eighteen dimensions of teacher behavior. A glossary of terms describes in detail each of the behaviors rated, and it is necessary for the observer to be thoroughly familiar with the definitions of the behaviors. For example, the teacher behavior designated "stereotyped-original" requires that the observer understand that stereotyped classroom behavior involves using routine procedures without variation, hesitancy to depart from procedure to take advantage of relevant questions or situations, unimaginative presentation, and no resourcefulness in answering questions or providing explanations. At the opposite of the stereotyped-original behavior continum would be the teacher who uses what seems to be original and relatively unique devices to aid in instruction, tries new materials or methods, seems imaginative and able to develop presentation around a question or situation, and is resourceful in answering questions and in providing illustrations. Each dimension is rated on a seven-point scale. A highly original teacher would be assigned a rating of seven, whereas a highly stereotyped teacher would be assigned a rating of one on the stereotyped-original dimension. If no opportunity is available to observe this particular behavior, the observer signifies this by circling the letter N on the record.

In adapting the Observation Schedule and Record to the secondary level it was possible to eliminate the subjects section, since ordinarily only one subject was involved. This made it possible to place the Classroom Observation Record on the reverse side of the Observation Schedule and Record so that only one sheet of paper was needed to record the results of each classroom visitation. Even though the present study was concerned mainly with activities and behaviors related to the development of creativity, all behaviors and activities were recorded for each classroom visitation. (A third instrument which had been developed to observe directly activities considered important for creativity was abandoned because there was so little evidence of the activities it included.)

In an attempt to measure student attitude toward their school experience (hypothesis 4), an instrument was developed from a series of essays written by university freshmen about their own high school experiences of education (Stookey, 1961). This instrument, reproduced in Appendix B, contained instructions to the students to describe the shape of their education and the effect the shape of it has had. In addition to the instructions for writing the essays, the instrument contained excerpts from student essays. These excerpts were both highly critical of the school experience and highly favorable. They included a variety of interpretations of the topic, some focusing on the school program and others dealing with the non-academic aspects of education.

To test the hypothesis that students in the high creative schools would score higher on tests designed to measure creative thinking abilities (hypothesis 5), four tests were selected which measured such divergent thinking factors as originality, ideational fluency, and spontaneous flexibility. These tests were developed by Guilford and his associates at the University of Southern California in connection with the studies of aptitudes of high level personnel. Using factor analysis techniques, Guilford developed a variety of new tests designed to measure cognitive abilities not measured in typical tests of intelligence. The tests used in this study--Quick Responses, Plot Titles, Alternate Uses, and Consequences--measure factors which can be placed in Guilford's structure of intellect. They fit into the divergent thinking category--a dimension which measures the type of ability considered important for creative thinking. It should be noted that Guilford believes that probably most of the factors in his structure of intellect contribute to the general ability of creativity.

In a study of the measurement of individual differences in originality (Wilson, Guilford, and Christensen, 1953), originality was defined as meaning "uncommonness," "remoteness," and "cleverness." Assuming that one of the most vital aspects of creativity is originality, Wilson, Guilford and Christensen described methods for measuring individual differences in originality. The first approach to the measurement of originality dealt with uncommonness of response. For this purpose, originality was defined as the ability to produce ideas that are statistically infrequent for the population of which the individual is a member. One test of uncommonness was the Quick Responses test which consists of a list of fifty stimulus words read to the examinees at the rate of one every five seconds, the examinee being told to respond with the first word that comes to his mind. The results are scored for uncommonness. The second dimension of originality, remoteness of association, is measured by the Unusual Uses test (similar to the Alternate Uses test of the present study). The test consisted of common objects for which one well-known use was given. The examinee was required to make use of remote associations in discovering additional uses for each object. A test used to measure cleverness was the Plot Titles test. The examinee is presented with a very short story plot and required to furnish titles for the plot. The cleverness shown in producing titles provides the originality score. Table 3 indicates the factor loadings of the tests described above.

TABLE 3

FACTOR LOADINGS FOR TESTS OF ORIGINALITY

Test	Factor Loading
Plot Titles (cleverness)	.55
Quick Responses (uncommonness)	.49
Unusual Uses (remoteness)	.31

Procedures

Approximately one week was spent gathering data in each of the four schools. The following procedures were followed in each of the four schools. To approximately sixty eleventh- and twelfth-grade students the High School Characteristics Index and the creativity tests were administered. From lists of students rated as highly creative by teachers and students, fifteen students in each school were selected and given directions regarding the writing of the essays. Approximately thirty teachers were given the Inventory of Beliefs. During the course of the week the investigator observed twenty periods of instruction, talked with administrators, teachers, and students, and examined such school publications as the yearbooks, newspapers, and newsletters. From the student records intelligence and College Board test scores were obtained.

Analysis of the Data

The High School Characteristics Index was scored by special equipment available at the Psychological Research Center, Syracuse University, which provided a punched summary of all scale scores and item responses for each case on a single IBM card, making it possible to preserve all of the original data in a convenient form for subsequent retrieval and further processing (Stern, 1963a). The MONSTER (Machine-Order Encoding, Scoring and Test Evaluation Resource) was used to transcribe the original item responses onto an IBM card, punching the thirty scale scores in alphabetical sequence in preselected columns of the IBM card. Raw score means and standard deviations were computed for each of the thirty scales. The scales were then transformed into standard scores, using the stanine system, with a mean of five and a standard deviation of two, based on normative data from a random sample of 210 university freshmen at a major Eastern university. Raw scores were transformed into the factor scores which had been obtained for the College Characteristics Index, an instrument closely resembling the High School Characteristics Index. Eleven environmental factors had been extracted in a principal componentsequamax analysis devised by Saunders. The matrix of intercorrelations between these factors were then refactored for the purpose of obtaining a clearer picture of the basic structure, yielding two second-order environmental dimensions. The means and standard deviations of each of the eleven first-order factors and two second-order factors were obtained.

A table containing the stanine scores for each of the thirty scales was constructed, together with instructions for calculating the differences for significance between standard score means, it was possible to make comparison between schools on each of the thirty scales. Since normative data was not available for the factor scores, it was not possible to transform them into standard scores. It was possible, however, to compare the factor scores of each of the four schools of the present study by using analysis of variance. This was accomplished for the eleven first-order factors. In addition, it was possible to compare the scale scores of each of the four schools of the present study with schools for which High School Characteristics Index data was available.

The Inventory of Beliefs yielded two sets of scores. The first score related to the nonstereopathic-stereopathic dimension; the second to the rational-irrational dimension. The scores were used for two purposes: (1) to assign each teacher a classification, using a grid which made it possible to plot the two scores for the purpose of discovering into which of the several categories a particular teacher would be placed; and (2) to compare the mean scores for each of the four schools on the two dimensions using analysis of variance.

The Observation Schedule and Record and the Classroom Observation Record were used to describe specific teaching situations in each of the four schools. The results were used to compare selected dimensions in the four schools, such as pupil initiating behavior, teacher stimulating-original behavior, and the proportion of class time devoted to certain activities.

Using the results of the creativity ratings, fifteen students were selected to write essays about their school experience. These were the students most frequently nominated by their teachers and fellow students as best fitting the description of a creative person (Appendix A). The completed essays were randomly assigned fictitious names and disguised in other ways so that they were completely anonymous. They were then typed and bound into a folder alphabetically according to the randomly assigned names. Using a rating instrument (Appendix C), an independent evaluator assigned a rating to each of the essays. A second evaluator rated eighteen of the essays for the purpose of establishing the reliability of the ratings. A Pearson product moment correlation coefficient was computed to determine the correlation between the two sets of ratings, yielding a correlation of .84 for the eighteen ratings compared.

The mean scores for each of the four schools were compared using analysis of variance. In addition, analysis by chi square was used to compare the numbers of students indicating positive as compared with negative attitudes toward their schools.

The battery of creativity tests were scored according to the instructions for each of the tests. The six scores were obtained for each individual student, transformed into C-scale scores, then combined into factor scores which in turn were combined into a creativity composite score.

The creativity test results were analyzed in a variety of ways. Since it was not possible to work with random samples of students from each of the four schools, it was decided to match samples of students who had taken the tests. Two matchings were made. The first included twenty-three students from each of two schools, one high creative and one traditional, matched on grade level, sex, age, and IQ. A t-test for means was used to determine whether or not the mean scores for the individual factors and for the creativity composite were significantly different.

A second matching involved twenty-five students from each of the four schools (N = 100), matched on grade level, IQ, and age. The means for the four schools on each of the three creativity factors and the composite creativity score were compared using analysis of variance. Since the samples in each of the four schools consisted of students from comparable socio-economic backgrounds, it was not considered necessary to make special provisions for socio-economic class. (Obviously, any number of variables for which no control was provided could be influential with regard to significant differences which might appear among the four schools.)

CHAPTER IV

FINDINGS

Psychological Environment

To assist in interpreting the findings from the High School Characteristics Index, the thirty environmental press scales and the thirteen factors are listed below together with their definitions (Stern, 1963a):

Press Scale Definitions

1. Abasement--Assurance: self-depreciation versus self-confidence.
2. Achievement: striving for success through personal effort.
3. Adaptability--Defensiveness: acceptance of criticism versus resistance to suggestion.
4. Affiliation--Rejection: friendliness versus unfriendliness.
5. Aggression--Blame Avoidance: hostility versus its inhibition.
6. Change--Sameness: flexibility versus routine.
7. Conjunctivity--Disjunctivity: planfulness versus disorganization.
8. Counteraction--Inferiority Avoidance: restriving after failure versus withdrawal.
9. Deference--Restiveness: respect for authority versus rebelliousness.
10. Dominance--Tolerance: ascendancy versus forbearance.
11. Ego Achievement: striving for power through social action.
12. Emotionality--Placidity: expressiveness versus restraint.
13. Energy--Passivity: effort versus inertia.
14. Exhibitionism--Inferiority Avoidance: attention-seeking versus shyness.
15. Fantasied Achievement: daydreams of extraordinary public recognition.
16. Harm Avoidance--Risktaking: fearfulness versus thrill seeking.
17. Humanities: interests in the Humanities and the Social Sciences.

18. Impulsiveness--Deliberation: impetuousness versus reflection.
19. Narcissism: vanity.
20. Nurturance--Rejection: helping others versus indifference.
21. Objectivity--Projectivity: detachment versus suspicion.
22. Order--Disorder: compulsive organization of details versus carelessness.
23. Play--Work: pleasure-seeking versus purposefulness.
24. Practicalness--Impracticalness: interest in practical activities versus indifference.
25. Reflectiveness: introspective contemplation.
26. Science: interests in the Natural Sciences.
27. Sensuality--Puritanism: interest in sensory and esthetic experiences.
28. Sexuality--Prudishness: heterosexual interests versus their inhibition.
29. Supplication--Autonomy: dependency versus self-reliance.
30. Understanding: intellectuality.

Environmental Factor Definitions

Factor 1. Aspiration Level.--A high score on this factor indicates that the college encourages students to set high standards for themselves in a variety of ways. These include opportunities for students to participate in decision-making processes involving the administration of the school, and administrative receptivity to change and innovation, thus implying that a student's efforts to make some impact on his environment have some probability of being successful. But a high level of aspiration is also encouraged by introducing students to individuals and ideas likely to serve as models of intellectual and professional achievement. Score Sum: Counteraction, Change, Fantasied Achievement, Understanding.

Factor 2. Intellectual Climate.--All of the various items contributing to this factor reflect the qualities of staff and plant specifically devoted to scholarly activities in the humanities, arts, and social sciences. Score Sum: Reflectiveness, Humanities-Social Sciences, Sensuality, Understanding, Fantasied Achievement.

Factor 3. Student Dignity.--This factor is associated with institutional attempts to preserve student freedom and maximize personal responsibility. Schools with high scores on this factor tend to regulate student conduct by means other than legislative codes or administrative fiat. There is a minimum of coercion and students are generally treated with the same level of respect accorded any mature adult. Score Sum: Objectivity, Assurance, Tolerance.

Factor 4. Academic Climate.--This factor stresses academic excellence in staff and facilities in the conventional areas of the natural sciences, social sciences, and the humanities. Score Sum: Humanities-Social Sciences, Science.

Factor 5. Academic Achievement.--Schools high in this factor set high standards of achievement for their students. Course work, examinations, honors, and similar devices are employed for this purpose. Score Sum: Achievement, Energy, Understanding, Counteraction, Conjunctivity.

Factor 6. Self-Expression.--This factor is concerned with opportunities offered to the student for the development of leadership potential and self-assurance. Among the activities serving this purpose are public discussions and debates, projects, student drama and musical activities, and other forms of participation in highly visible activities. Score Sum: Ego Achievement, Emotionality, Exhibitionism, Energy.

Factor 7. Group Life.--The four scales on this factor are concerned with various forms of mutually supportive group activities among the student body. These activities are of a warm, friendly character, more or less typifying adolescent togetherness, but the items also reflect a more serious side to this culture as represented in activities devoted to the welfare of fellow students and less fortunate members of the community. Score Sum: Affiliation, Supplication, Nurturance, Adaptability.

Factor 8. Academic Organization.--The various components of this factor may be regarded as the environmental counterparts of the needs for orderliness and submissiveness in the individual. High scores on this factor are achieved by institutions which stress a high degree of organization and structure in the academic environment. Score Sum: Blame Avoidance, Order, Conjunctivity, Deliberation, Deference, Narcissism.

Factor 9. Social Form.--In some respects this factor represents the formal institutionalization of those activities represented in Factor 7 (Group Life). There is in fact considerable overlap between these two factors, but Factor 9 minimizes the friendly aspects of Factor 7, while stressing its welfare components. Schools characterized by this factor also offer opportunities for the development of social skills of a formal nature and in some respects suggest the finishing school counterpart of the vocational climate represented in Factor 11 below. Score Sum: Narcissism, Nurturance, Adaptability, Dominance, Play.

Factor 10. Play-Work.--Schools high in this factor offer opportunities for participation in a form of collegiate life reminiscent of the popular culture of the 1920's. These are the institutions sometimes referred to as the fountains of knowledge where students gather to drink. Score Sum: Sexuality, Risktaking, Play, Impulsiveness.

Factor 11. Vocational Climate.--The last of the non-intellectual factors is also shared with the Intellectual Climate area. The items of Factor 11 emphasize practical, applied activities, the rejection of aesthetic experience, and a high level of orderliness and conformity in the student's relations to the faculty, his peers, and his studies. Score Sum: Practicalness, Puritanism, Deference, Order, Adaptiveness.

Factor I. Intellectual Climate.--Eight of the eleven factors co-vary together to define the over-all dimensions of the intellectual climate. Among them are represented the more conventional aspects of the academic program, including (a) staff and facilities, (b) standards of achievement set by students as well as faculty, and (c) opportunities for the development of self-assurance. In addition to these three, the intellectual climate is also marked, as we shall see below, by (d) non-custodial student personnel practices and (e) an absence of vocationalism. The following first-order factors constitute Factor I:

Factor 1. Aspiration Level
Factor 2. Intellectual Climate
Factor 3. Student Dignity
Factor 4. Academic Climate
Factor 5. Academic Achievement
Factor 6. Self-Expression
Factor 10. Play-Work (reversed)
Factor 11. Vocational Climate (reversed)

Factor II. Non-Intellectual Climate.--This area shares the Self-Expression factor with the preceding one. The highest loadings, however, are connected with three factors involving a high level of organization of student affairs, both academic and social. The remaining two factors are associated with student play and an emphasis on technical and vocational courses. The following first-order factors constitute Factor II:

Factor 6. Self-Expression
Factor 7. Group Life
Factor 8. Academic Organization
Factor 9. Social Form
Factor 10. Play-Work
Factor 11. Vocational Climate

The raw score values for the thirty press scales of the High School Characteristics Index are summarized in Table 4. The means and standard deviations are presented for the four schools of the

TABLE 4

RAW SCORE VALUES OF PRESS SCALES FROM STUDENT RESPONSES AT FOUR HIGH SCHOOLS

Press Scales	Thornton (N = 49)		Waverly (N = 62)		Dover (N = 42)		Elmwood (N = 62)	
	M	SD	M	SD	M	SD	M	SD
1. Abasement--Assurance	3.65	1.96	3.37	1.99	2.00	1.70	4.55	2.07
2. Achievement	7.49	1.61	6.89	1.78	4.86	1.47	8.39	1.32
3. Adaptability--Defensiveness	4.67	1.30	4.85	1.16	3.10	1.43	6.00	1.74
4. Affiliation--Rejection	7.41	1.40	4.35	1.83	5.00	2.13	7.52	1.90
5. Aggression--Blame Avoidance	3.02	1.89	2.65	1.91	3.33	2.04	4.65	2.01
6. Change--Sameness	4.67	1.41	6.05	1.34	6.60	1.45	5.39	1.07
7. Conjunctivity--Disjunctivity (planfulness v disorganization)	7.53	1.69	7.13	1.87	6.69	1.98	8.11	1.70
8. Counteraction--Inferiority Avoidance (restiveness after failure v withdrawal)	6.65	1.46	6.98	1.45	8.31	1.86	6.16	1.94
9. Deference--Restiveness	4.49	1.43	4.21	1.40	2.43	1.09	4.79	1.66
10. Dominance--Toleration	6.39	1.87	5.19	2.13	4.14	2.01	6.61	1.73
11. Ego Achievement	6.41	1.92	4.65	1.81	7.10	1.73	4.77	2.27
12. Emotionality--Placidity	6.06	1.92	5.27	1.67	6.74	1.53	6.76	1.56
13. Energy--Passivity	6.63	2.11	6.27	2.10	6.21	1.83	7.40	1.84
14. Exhibition--Inferiority Avoidance (attention-seeking v shyness)	6.18	1.61	5.16	1.62	5.74	1.53	5.19	1.66
15. Fantasied Achievement	5.63	1.34	5.00	1.70	5.29	1.47	4.92	1.52

TABLE 4--Continued

Press Scales	Thornton (N = 49)		Waverly (N = 62)		Dover (N = 42)		Elmwood (N = 62)	
	M	SD	M	SD	M	SD	M	SD
16. Harm Avoidance--Risktaking	2.69	1.50	4.53	1.66	5.10	1.17	4.58	1.45
17. Humanities, Social Science	4.02	1.88	4.58	2.35	6.40	2.11	3.48	2.45
18. Impulsiveness--Deliberation	6.10	1.39	5.47	1.71	7.24	1.38	5.50	1.52
19. Narcissism (vanity)	8.04	1.40	7.19	1.91	3.52	1.71	7.79	1.27
20. Nurturance--Rejection	5.00	2.45	4.02	2.25	5.31	2.25	4.24	1.82
21. Objectivity--Projectivity (detachment v suspicion)	7.49	1.86	7.76	2.15	8.29	1.96	6.23	2.43
22. Order--Disorder	5.49	1.63	5.45	1.41	3.24	1.34	6.73	1.48
23. Play--Work	7.63	1.49	4.08	2.02	5.29	2.16	6.66	1.46
24. Practicalness--Impracticalness	6.76	1.36	5.98	1.76	4.31	1.41	6.65	1.45
25. Reflectiveness	6.57	1.90	5.92	1.96	7.17	2.02	4.87	2.26
26. Science (Natural Sciences)	6.02	1.36	6.02	2.03	5.24	2.04	6.02	1.90
27. Sensuality--Puritanism	3.79	1.69	4.71	2.15	5.86	1.41	4.40	1.75
28. Sexuality--Prudishness	6.59	1.98	4.84	2.55	5.81	1.65	5.26	1.63
29. Supplication--Autonomy (Dependence v self-reliance)	5.47	2.38	5.97	1.75	6.52	1.74	6.19	1.50
30. Understanding (intellectuality)	6.29	1.70	7.11	1.71	8.02	1.65	6.95	1.75

present study. These values were transformed into standard scores (expressed in stanines with a mean of five and a standard deviation of two) based on a random sample of 210 freshmen at a major Eastern university. The stanine values for the four schools are presented in Table 5. For the four schools represented, a reasonable definition of a noticeable press would be one which required a mean score falling in the upper or lower one-fourth of the total population. Thus a mean score of 6.34 or higher and a mean score of 3.66 or lower would be suggestive of a distinctive environmental press. Table 5 also makes it possible to determine whether or not the means between any two schools differed significantly. A difference of approximately .9 indicates significance beyond the .05 level (Stern, 1963a, p. 26).

For the first press scale, abasement-assurance, it is noted that Elmwood scored highest and Dover scored lowest. Since the Dover score is 3.66, it is in the lower one-fourth of the total distribution and would be suggestive of a press in the direction of low abasement-high assurance. In addition, the Dover score is significantly different from the other three schools, since the difference between the Dover score (3.66) and the next highest score, Waverly (5.00), is greater than .9. It can also be seen that Elmwood, the highest scoring school on this scale, has a score which is significantly higher than Waverly and Dover but not Thornton. The difference between Thornton (5.27) and Waverly (5.00) is not significant.

Hypothesis 1 stated that the high creative schools would have higher scores in such areas as achievement, adaptability, change, dominance, energy, humanities, impulsion, and autonomy. Scores would tend to be low in such areas as abasement, blame avoidance, sameness,

TABLE 5

HIGH SCHOOL DESCRIPTIONS BY 215 HIGH SCHOOL JUNIORS AND SENIORS FROM FOUR SECONDARY SCHOOLS

Press Scales	High School			
	Thornton (N = 49)	Waverly (N = 62)	Dover (N = 42)	Elmwood (N = 62)
1. Abasement--Assurance	5.27	5.00	3.66	6.16
2. Achievement	5.45	4.82	2.71	6.38
3. Adaptability--Defensiveness	4.76	4.97	2.94	6.30
4. Affiliation--Rejection	5.07	2.16	2.78	5.17
5. Aggression--Blame Avoidance	5.40	5.04	5.69	6.94
6. Change--Sameness	5.66	7.17	7.77	6.45
7. Conjunctivity--Disjunctivity (planfulness v disorganization)	5.04	4.66	4.24	5.59
8. Counteraction--Inferiority Avoidance (restiveness after failure v withdrawal)	4.60	5.03	6.72	3.98
9. Deference--Restiveness	4.54	4.17	1.82	4.93
10. Dominance--Toleration	5.16	4.01	3.00	5.37
11. Ego Achievement	4.96	3.23	5.64	3.35
12. Emotionality--Placidity	5.13	4.20	5.93	5.96
13. Energy--Passivity	5.23	4.92	4.87	5.89
14. Exhibition--Inferiority Avoidance (attention-seeking v shyness)	4.59	3.50	4.12	3.53
15. Fantasied Achievement	5.72	4.87	5.24	4.76
16. Harm Avoidance--Risktaking	3.00	4.92	5.51	4.97
17. Humanities, Social Science	4.57	5.02	6.47	4.14

TABLE 5--Continued

Press Scales	High School			
	Thornton (N = 49)	Waverly (N = 62)	Dover (N = 42)	Elmwood (N = 62)
18. Impulsiveness--Deliberation	5.30	4.60	6.58	4.63
19. Narcissism (vanity)	5.14	4.21	.17	4.87
20. Nurturance--Rejection	4.03	3.26	4.27	3.43
21. Objectivity--Projectivity (detachment v suspicion)	4.85	5.09	5.56	3.70
22. Order--Disorder	4.16	4.12	1.15	5.61
23. Play--Work	5.95	1.94	3.29	4.85
24. Practicalness--Impracticalness	4.79	3.80	1.70	4.63
25. Reflectiveness	5.40	4.79	5.97	3.81
26. Science (Natural Sciences)	4.86	4.86	4.20	4.86
27. Sensuality--Puritanism	3.90	4.83	6.00	4.51
28. Sexuality--Prudishness	4.76	2.89	3.93	3.34
29. Supplication--Autonomy (dependency v self-reliance)	4.34	4.89	4.51	5.13
30. Understanding (intellectuality)	4.53	5.36	6.27	5.20

Notes:

All values in this table are stanines ($M = 5.0$, $SD = 2.0$) based on a normative random sample of 210 freshmen at a major Eastern University. Deviations from 5.0 recorded above are correspondingly higher or lower than this criterion group.

The upper or lower one-fourth of the total distribution (scores greater than 6.34 and less than 3.66 would be suggestive of a noticeable press.

Differences of .90 or greater between means are significant beyond the .05 level.

deference, order, and passivity. Although there were a number of exceptions--notably on the scales of achievement, dominance, and energy--there appeared to be a general trend in the direction hypothesized. The hypothesis was confirmed for such scales as change, humanities, abasement, deference, and order. On a number of scales--impulsiveness, for example--the high creative schools bracket the traditional schools, one scoring highest and the other lowest.

To make it possible to relate the findings of the present study to other data available, high school descriptions for several different types of school are presented in Table 6. It can be observed that private schools tend to have higher scores on such scales as achievement, humanities, reflectiveness, and understanding --scales which are related to the intellectual climate of the school. The parochial schools reflect a press toward dependency and conformity. Both the public schools indicated a press toward personal autonomy. Since the norms for the four schools of the present study were identical with those used for the schools described in Table 6, it is possible to compare the scores of the four schools of the present study with the several types of schools presented in Table 6. Table 7 illustrates the wide range of values on the scale deference--restiveness (respect for authority versus rebelliousness) when the schools of the present study are ranked with the schools represented in Table 6.

The eleven first-order factor scores are summarized in Table 8. With the exception of factor 5 (academic achievement), analysis of variance yielded differences significant beyond the .01 level of confidence. Table 9 presents multiple comparisons of the factor means. Any two means not underscored by the same line are significantly

TABLE 6[a]

DIFFERENCES IN HIGH SCHOOL DESCRIPTION BY 317 COLLEGE FRESHMEN FROM FOUR TYPES OF SECONDARY SCHOOLS[b]

Press Scales	High School Background					
	63 Private (N = 103)	42 Parochial (N = 89)	1 Local Public (N = 96)	1 Nonlocal Public (N = 29)	Total (N = 317)	p_F [c]
1. Abasement--Assurance	4.63	5.18	+5.68	5.32	5.17	.01
2. Achievement	+6.15	5.75	5.14	4.94	5.62	.01
3. Adaptability--Defensiveness	4.84	5.14	4.64	4.18	4.80	--
4. Affiliation--Rejection	4.44	4.70	4.68	-1.85	4.35	.001
5. Aggression--Blame Avoidance	4.32	4.39	4.38	+5.51	4.47	.05
6. Change--Sameness	5.80	5.14	-4.40	-3.73	5.00	.001
7. Conjunctivity--Disjunctivity (planfulness v disorganization)	6.04	5.70	4.64	4.73	5.40	.001
8. Counteraction--Inferiority Avoidance (restiveness after failure v withdrawal)	+5.96	+5.11	4.07	3.68	4.94	.001
9. Deference--Restiveness	4.93	+6.83	4.78	4.89	5.41	.001
10. Dominance--Toleration	-4.35	-4.44	5.63	5.82	4.90	.001
11. Ego Achievement	+5.97	5.19	5.51	4.60	5.49	.01
12. Emotionality--Placidity	+5.61	+5.65	4.34	3.07	5.00	.001
13. Energy--Passivity	+6.15	+5.62	4.25	4.04	5.24	.001
14. Exhibition--Inferiority Avoidance (attention-seeking v shyness)	4.77	4.91	5.34	4.59	4.97	.001
15. Fantasied Achievement	5.19	4.77	5.08	4.79	5.00	--
16. Harm Avoidance--Risktaking	5.81	+6.44	-4.35	5.27	5.50	.001
17. Humanities, Social Science	+6.46	5.15	4.83	5.16	5.48	.001

TABLE 6--Continued

Press Scales	High School Background				Total	P_F[c]
	63 Private (N = 103)	42 Parochial (N = 89)	1 Local Public (N = 96)	1 Nonlocal Public (N = 29)	(N = 317)	
18. Impulsiveness--Deliberation	4.21	4.10	4.48	+5.54	4.39	.05
19. Narcissism (vanity)	4.95	+5.58	4.66	4.69	5.02	.01
20. Nurturance--Rejection	+5.81	+6.47	-5.04	-4.00	5.60	.001
21. Objectivity--Projectivity (detachment v suspicion)	+5.58	5.06	4.50	4.81	5.04	.01
22. Order--Disorder	-4.99	+6.75	5.77	5.50	5.77	.001
23. Play--Work	4.08	4.84	4.75	-2.86	4.39	.001
24. Practicalness--Impracticalness	3.57	4.27	+5.25	3.83	4.30	.001
25. Reflectiveness	+6.35	5.60	5.90	5.00	5.64	.001
26. Science (Natural Sciences)	5.26	4.69	5.26	5.54	5.13	--
27. Sensuality--Puritanism	+5.80	4.76	4.50	4.52	5.00	.001
28. Sexuality--Prudishness	-3.24	3.55	5.32	+5.35	4.15	.001
29. Supplication--Autonomy (dependency v self-reliance)	+5.37	+5.52	-2.96	-2.80	4.45	.001
30. Understanding (intellectuality)	+6.21	+5.41	-4.60	-4.52	5.35	.001

[a] Adapted from Stern (1961, p. 54-55).

[b] All values in this table are stanines (M = 5.0, SD = 2) based on a random sample of 210 freshmen at the same college. Deviations from 5.0 recorded above are correspondingly higher or lower than this criterion group.

[c] Means contributing to significant F are indicated by + and - signs (based on Duncan's test).

TABLE 7

VALUES OF THE PRESS SCALE DEFERENCE-RESTIVENESS FOR SEVERAL TYPES OF SCHOOLS

Rank	High School Background	Mean Score
1	42 Parochial Schools	6.83
2	Elmwood	4.93
3	63 Private	4.93
4	1 Nonlocal Public	4.89
5	1 Local Public	4.78
6	Thornton	4.54
7	Waverly	4.17
8	Dover	1.82

different from each other beyond the .05 level of confidence. Any two means underscored by the same line are not significantly different. For the first factor, aspiration level, it can be seen from Table 9 that the mean score for Dover is significantly higher than the mean scores at the other three schools. Waverly scored significantly higher than Thornton but not Elmwood. Thornton and Elmwood were not significantly different.

Hypothesis 1 stated that High creative schools would score high on such factors as aspiration level, academic achievement, self-expression, academic climate, and student dignity, and low on such factors as academic organization and vocational climate. The findings, in general, support this expectation. The high creative schools, Dover and Waverly, tended to score highest on such factors as aspiration level, academic climate, and student dignity, and lowest on the factors of academic organization and vocational climate. Hypothesis 1 was not supported with respect to the factors of academic achieve-

TABLE 8

ENVIRONMENTAL PRESS FACTOR VALUES FOR FOUR HIGH SCHOOLS

Factors	High School								F
	Thornton (N - 49)		Waverly (N - 62)		Dover (N - 42)		Elmwood (N - 62)		
	M	SD	M	SD	M	SD	M	SD	
1. Aspiration Level	23.24	3.85	25.15	4.23	28.21	3.11	23.42	4.46	14.66[a]
2. Intellectual Climate	26.31	5.87	27.32	7.39	32.74	6.77	24.63	7.40	11.72[a]
3. Student Dignity	17.45	4.43	19.19	5.06	22.14	4.46	15.06	5.13	18.94[a]
4. Academic Climate	10.04	2.60	10.60	3.88	11.64	3.50	9.50	3.85	12.46[a]
5. Academic Achievement	34.59	6.67	34.39	6.94	34.10	5.58	37.02	6.63	2.40
6. Self-Expression	25.29	5.46	21.35	5.18	25.79	4.57	24.13	5.57	7.70[a]
7. Group Life	22.55	4.62	19.19	4.53	19.93	4.64	23.95	4.66	13.23[a]
8. Academic Organization	36.43	5.51	35.87	5.55	25.31	6.08	37.27	5.59	44.15[a]
9. Social Form	31.73	3.67	25.34	4.92	21.36	5.49	31.31	4.08	57.40[a]
10. Play--Work	27.63	3.98	19.85	5.44	23.24	3.14	22.84	4.04	28.96[a]
11. Vocational Climate	27.61	3.77	25.79	3.90	17.21	3.26	29.76	3.83	99.10[a]

[a] Significant beyond the .01 level of confidence. (An F greater than 3.88 is significant at the .01 level.)

TABLE 9

MULTIPLE COMPARISONS OF ENVIRONMENTAL PRESS FACTORS FOR FOUR HIGH SCHOOLS[a]

Factor	Order of Magnitude			
	Lowest	Second Lowest	Second Highest	Highest
1. Aspiration Level	Thornton 23.24	Elmwood 23.42	Waverly 25.15	Dover 28.21
2. Intellectual Climate	Elmwood 24.63	Thornton 26.31	Waverly 27.32	Dover 32.74
3. Student Dignity	Elmwood 15.06	Thornton 17.45	Waverly 19.19	Dover 22.14
4. Academic Climate	Elmwood 9.50	Thornton 10.04	Waverly 10.60	Dover 11.64
5. Academic Achievement	Dover 34.10	Waverly 34.39	Thornton 34.59	Elmwood 37.02
6. Self-Expression	Waverly 21.35	Elmwood 24.13	Thornton 25.29	Dover 25.79
7. Group Life	Waverly 19.19	Dover 19.93	Thornton 22.55	Elmwood 23.95
8. Academic Organization	Dover 25.31	Waverly 35.87	Thornton 36.43	Elmwood 37.27
9. Social Form	Dover 21.36	Waverly 25.34	Elmwood 31.31	Thornton 31.73
10. Play Work	Waverly 19.85	Elmwood 22.84	Dover 23.24	Thornton 27.63
11. Vocational Climate	Dover 17.21	Waverly 25.79	Thornton 27.61	Elmwood 29.76

[a] Based on Duncan's New Multiple Range test. Any two means not underscored by the same line are significantly different at the .05 level. Any two means underscored by the same line are not significantly different.

ment and self-expression.

The second-order factors are presented in Table 10. It can be seen that the high creative schools, Dover and Waverly, scored highest in intellectual climate and lowest in non-intellectual climate. An inspection of Tables 9 and 10 reveals that the two schools which are most distinctively different are Dover and Elmwood. On seven of the thirteen factors, these two schools obtained either the highest or lowest score on the factor. It is also noted that Dover presented the most distinctive profile of the four schools, scoring either highest or lowest on eleven of the thirteen factors.

To illustrate differences between schools of different types with regard to the press scales that constitute a factor score, the scales making up the factors of academic organization and intellectual climate are presented in Tables 11 and 12 respectively. In Table 11, for example, the differences in the scale scores for Dover are markedly different from the scale scores from the other types of schools presented.

It is possible to present a summary of the characteristics of the four schools of the present study from the High School Characteristics Index data. The four schools can be compared with each other and with other types of schools where the same normative sample was used. A summary description of each school is presented below:

Thornton High School.--Only one of the scale values for Thornton falls in the extreme one-fourth of the total distribution based on the normative random sample: harm avoidance--risktaking

TABLE 10

SECOND-ORDER ENVIRONMENTAL PRESS VALUES FOR FOUR HIGH SCHOOLS

Second-Order Factor	High School							
	Thornton (N = 49)		Waverly (N = 62)		Dover (N = 42)		Elmwood (N = 62)	
	M	SD	M	SD	M	SD	M	SD
I. Intellectual Climate	171.67	25.62	182.35	29.99	204.17	24.90	171.16	29.87
II. Non-Intellectual Climate	171.24	16.23	147.48	18.28	132.83	19.63	169.26	17.07

TABLE 11

DIFFERENCES IN PRESS SCALES CONSTITUTING THE FACTOR ACADEMIC ORGANIZATION BETWEEN VARIOUS TYPES OF SECONDARY SCHOOLS

Press Scales	High School							
	63 Private (N=103)	42 Parochial (N=89)	1 Local Public (N=96)	1 Nonlocal Public (N=29)	Thornton (N=49)	Waverly (N=62)	Dover (N=42)	Elmwood (N=62)
Blame Avoidance (inhibition of hostility)	5.68	5.61	5.62	4.49	4.60	4.96	4.31	3.06
Order	4.99	6.75	5.77	5.50	4.16	4.12	1.51	5.61
Conjunctivity (planfulness)	6.04	5.70	4.64	4.73	5.04	4.66	4.24	5.59
Deliberation	5.79	5.90	5.52	4.46	4.70	5.40	3.42	5.37
Deference	4.93	6.83	4.78	4.89	4.54	4.17	1.82	4.93
Narcissism (vanity)	4.95	5.58	4.66	4.69	5.14	4.21	.17	4.87
Factor Mean	5.40	6.06	5.17	4.79	4.70	4.59	2.58	4.91

Notes:

All values in this table are stanines (M = 5.0, SD = 2.0) based on a normative random sample of 210 freshmen at a major Eastern university. Deviations from 5.0 recorded above are correspondingly higher or lower than this criterion group.

The upper or lower one-fourth of the total distribution (scores greater than 6.34 and less than 3.66 would be suggestive of a noticeable press.

Differences of .90 or greater between means are significant beyond the .05 level.

TABLE 12

DIFFERENCES IN PRESS SCALES CONSTITUTING THE FACTOR INTELLECTUAL CLIMATE BETWEEN VARIOUS TYPES OF SECONDARY SCHOOLS

	High School							
	63 Private (N=103)	42 Parochial (N=89)	1 Local Public (N=96)	1 Nonlocal Public (N=29)	Thornton (N=49)	Waverly (N=62)	Dover (N=42)	Elmwood (N=62)
Reflectiveness	6.35	5.60	5.90	5.00	5.40	4.79	5.97	3.81
Humanities	6.46	5.15	4.83	5.16	4.57	5.02	6.47	4.14
Sensuality	5.80	4.76	4.50	4.52	3.90	4.83	6.00	4.51
Understanding	6.21	5.41	4.60	4.52	4.53	5.36	6.27	5.20
Fantasied Achievement	5.19	4.77	5.08	4.79	5.72	4.87	5.24	4.76
Factor Mean	6.00	5.14	4.98	4.80	4.82	4.97	5.99	4.48

Notes:

All values in this table are stanines (M = 5.0, SD = 2.0) based on a normative random sample of 210 freshmen at a major Eastern university. Deviations from 5.0 recorded above are correspondingly higher or lower than this criterion group.

The upper or lower one-fourth of the total distribution (scores greater than 6.34 and less than 3.66 would be suggestive of a noticeable press.

Differences of .90 or greater between means are significant beyond the .05 level.

(fearfulness versus thrill-seeking). The score of 3.00 indicates that there is a press in the direction of thrill-seeking. The following statements might be considered characteristic of the school: many students here drive cars; people here are not "safety-first" conscious; few students bother with rubbers, hats, or other special protection against the weather; a great many students are involved in athletic activities; and club initiations and club rivalries sometimes get a little rough.

In comparison with the other three schools of the present study, Thornton scored lowest on factor 1 (aspiration level, and highest on factors 9 (social form) and 10 (play-work). On the second-order factors Thornton scored highest on factor II (non-intellectual climate).

Waverly.--In comparison with the normative sample, Waverly scored in the top one-fourth on the press scale change, and in the bottom one-fourth on the following scales: affiliation, ego-achievement, exhibitionism, nurturance, play, and sexuality. In comparison with the other three schools, Waverly did not receive the highest score on any of the factors but did receive the lowest score in self-expression, group life, and play-work. On the second-order factors Waverly ranked second in intellectual climate and third in non-intellectual climate.

Dover.--Of the four schools studied, Dover obtained the greatest number of scores in the upper and lower quartiles on the press scales and the largest number of highest and lowest factor scores. Dover scored in the upper one-fourth on the press scale change, and in the lower one-fourth on the following press scales: abasement, achievement, adaptibility, affiliation, deference, dominance, narcissism, order, play, and practicalness. In comparison with the other three schools, Dover scored highest on the following factors: aspiration level, intellectual climate, student dignity, academic climate, and self-expression. Dover scored lowest in academic achievement, academic organization, social form, and vocational climate. On the second-order factors Dover scored highest in intellectual climate and lowest in non-intellectual climate.

Elmwood.--Elmwood scored in the top one-fourth on achievement, aggression, and change, and in the lower one-fourth in ego-achievement, exhibitionism, nurturance, and sexuality. In comparison with the other three schools, Elmwood scored highest on the factors of academic achievement, group life, academic organization, and vocational climate, and lowest on the factors of intellectual climate, student dignity, and academic climate. Elmwood ranked fourth on the second-order intellectual climate and second on the factor non-intellectual climate.

Summary

In general, hypothesis 1 was confirmed. Scores on a number of the environmental press scales and most of the environmental press factors were in the direction hypothesized. The high creative schools were found to have environments with the following characteristics: assurance, low achievement, defensiveness, rejection, change, disjunctivity, counteraction, restiveness, toleration, humanities, low narcissism, objectivity, low order, low play, low practicalness, sensuality, and understanding. They tended to be distinctive with regard to aspiration level, intellectual climate, student dignity, and academic climate. Scores were low on the factors of academic achievement, group life, academic organization, social form, and vocational climate. The high creative schools had a high intellectual climate and low non-intellectual climate.

The traditional schools scored high on the factors of academic achievement, group life, academic organization, social form, and vocational climate. Scores tended to be low on the factors of aspiration level, intellectual climate, student dignity, and academic climate. The traditional schools were lowest on measures of factor intellectual climate and highest on non-intellectual climate.

Teacher Personality

The results from the Inventory of Beliefs are summarized in Table 13. For the four schools the scores on the rational-irrational dimension were similar, ranging from 66.15 to 68.34. On the nonstereopathic-stereopathic dimension the scores ranged from 50.82 to 64.12, a difference significant beyond the .01 level of confidence. Table 14 presents a multiple comparison of the nonstereopathic-stereopathic values for the teachers in the four high schools. It can be seen that teachers at Dover are significantly more nonstereopathic than teachers at the other three schools. The teachers at Waverly are more nonstereopathic than teachers at Thornton. The differences between Elmwood and Waverly and between Thornton and Elmwood are not significant.

Table 15 summarizes the classification of teachers from the

TABLE 13

DIFFERENCES IN INVENTORY OF BELIEFS VALUES FOR TEACHERS FROM FOUR HIGH SCHOOLS

Dimension	High School				F
	Thornton (N = 29)	Waverly (N = 31)	Dover (N = 32)	Elmwood (N = 33)	
Nonstereopathic-Stereopathic	50.82	57.32	64.12	52.45	10.59[a]
Rational-Irrational	68.34	68.38	66.15	67.63	.43

[a] Significant beyond the .01 level.

TABLE 14

MULTIPLE COMPARISON OF NONSTEREOPATHIC-STEREOPATHIC VALUES FOR TEACHERS IN FOUR HIGH SCHOOLS

Order of Magnitude			
Lowest	Second Lowest	Second Highest	Highest
Thornton 50.82	Elmwood 52.45	Waverly 57.32	Dover 64.12

Note:

Based on Duncan's New Multiple Range test. Any two means not underscored by the same line are significantly different at the .05 level. Any two means underscored by the same line are not significantly different.

TABLE 15

CLASSIFICATION OF TEACHERS FROM FOUR HIGH SCHOOLS ACCORDING TO INVENTORY OF BELIEFS CATEGORIES

Category	High School				Total (N = 125)
	Thornton (N = 29)	Waverly (N = 31)	Dover (N = 32)	Elmwood (N = 33)	
1. Nonstereopathic	0	0	4	0	4
2. Nonstereopathic-Rational	5	9	18	4	36
3. Rational	13	13	6	16	48
4. Rational-Stereopathic	6	1	1	4	12
5. Stereopathic	2	0	0	1	3
6. Stereopathic-Irrational	0	0	0	0	0
7. Irrational	0	0	0	0	0
8. Irrational-Nonstereopathic	0	0	0	0	0
9. Unclassified	3	8	3	8	22

four high schools according to the Inventory of Beliefs categories. From this table it can be seen that Dover has four teachers classified as nonstereopathic, eighteen as nonstereopathic-rational, six as rational, one as rational-stereopathic, three as unclassified and none in the remaining categories.

Figure 2 serves to indicate the relative positions of the mean scores for the four high schools. Dover is farthest in the direction of the nonstereopathic dimension, whereas Elmwood is

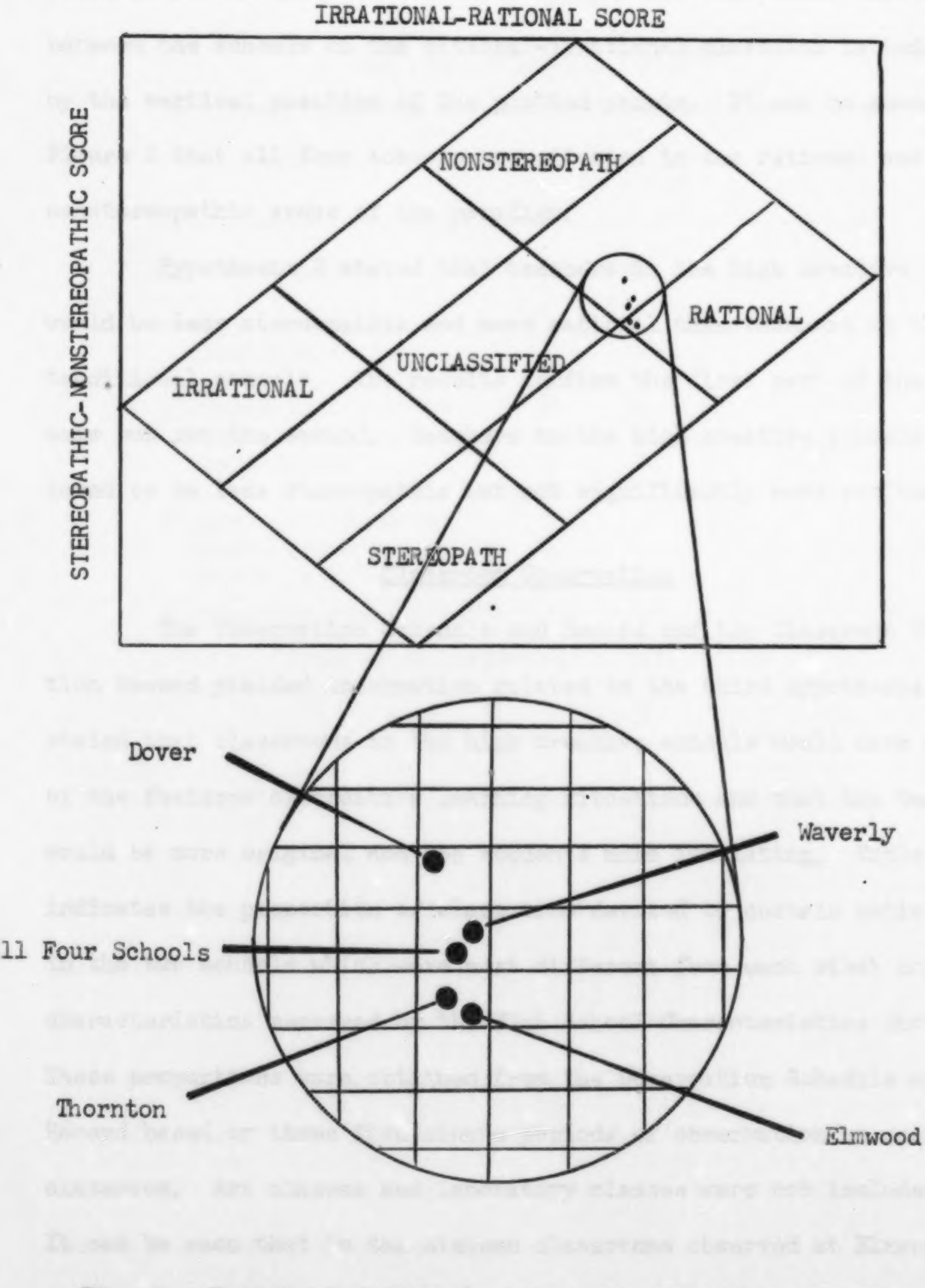

Fig. 2.--Inventory of Beliefs values for four high schools.

farthest in the direction of the stereopathic. The small difference between the schools on the rational-irrational dimension is indicated by the vertical position of the plotted points. It can be seen from Figure 2 that all four schools are situated in the rational and nonstereopathic areas of the paradigm.

Hypothesis 2 stated that teachers in the high creative schools would be less stereopathic and more rational than teachers in the more traditional schools. The results confirm the first part of the hypothesis but not the second. Teachers in the high creative schools were found to be less stereopathic but not significantly more rational.

Classroom Observation

The Observation Schedule and Record and the Classroom Observation Record yielded information related to the third hypothesis, which stated that classrooms in the high creative schools would have many of the features of creative learning situations and that the teachers would be more original and the students more initiating. Table 16 indicates the proportion of class time devoted to certain activities in the two schools which were most different from each other in the characteristics measured by the High School Characteristics Index. These proportions were obtained from the Observation Schedule and Record based on three five-minute periods of observation in each classroom. Art classes and laboratory classes were not included. It can be seen that in the sixteen classrooms observed at Elmwood a greater proportion of the class period was devoted to "teacher lectures" than was the case at Dover. Five percent of the time at Elmwood was devoted to such pupil activities as "pupil reports, pupil

TABLE 16

PROPORTION OF CLASS TIME IN TWO SCHOOLS DURING WHICH CERTAIN ACTIVITIES OCCUR[a]

Activity	Dover (N = 14)	Elmwood (N = 16)
Teacher lectures	43	67
Student leads, reports, demonstrates	7	5
Students work without teacher in groups or individually	7	2
Student puts head on hands, gazes out window, etc.	71	81

[a] Express in percentage of total time of observation.

gives prepared talk, pupil demonstrates, pupil illustrates, or pupil leads class," whereas at Dover seven percent of the time was devoted to these activities. It was noted that during eighty-one percent of the classroom time at Elmwood, pupils were observed to "put hands on head, look out window, etc.," while this activity was observed seventy-one percent of the time at Dover, suggesting less apathy at Dover. It would appear that instruction at Elmwood tended to be of a more traditional teacher-centered nature, whereas at Dover there was a tendency in the direction of pupil-centered activities.

The dimensions of the Classroom Observation Record considered to be particularly relevant to the present study were the "stimulating-dull" and "original-stereotyped" teacher behaviors and the "initiating-dependent" pupil behavior. Previous research (Ryans, 1960) has indicated that teacher behavior is related to pupil behavior, although to a lesser extent at the secondary level than the elementary level. A description of the behaviors selected for analysis is presented in Figure 3.

The ratings for the stimulating-dull and original-stereotyped dimensions were combined to provide a single score for each teacher. The rating on the student initiating-dependent dimension was not combined with any other student dimension. Table 17 summarizes the findings on student and teacher behavior. For student initiating behavior, a score of 4 would indicate a neutral rating, that is, neither especially initiating nor especially dependent. It can be seen that Waverly and Dover score in the direction of initiating behavior, whereas Thornton and Elmwood score in the direction of dependent behavior. For teacher behavior, since a score of 8 would indicate a neutral position (half-way between stimulating-original and dull-stereotyped), a score above 8 would be in the direction of stimulating-original behavior and one below 8 would be in the direction of dull-stereotyped behavior. Table 17 indicates that teachers were rated above the neutral position, that is, in the direction of stimulating-original behavior in all four schools. Dover was farthest in this direction, whereas Elmwood was only slightly in this direction. For both student initiating behavior and teacher stimulating-original behavior analysis of variance yielded significant differences between schools beyond the .01 level of confidence. Table 17 indicates that the means at Waverly and Dover are significantly higher than the means at Elmwood and Thornton on both dimensions. It would thus appear that

STUDENT BEHAVIOR

Dependent	1 2 3 4 5 6 7 N	Initiating
1. Relied on teacher for explicit directions.		1. Volunteered ideas and suggestions.
2. Showed little ability to work things out for selves.		2. Showed resourcefulness.
3. Unable to proceed when initiative called for.		3. Took lead willingly.
4. Appeared reluctant to take lead or to accept responsibility.		4. Assumed responsibilities without evasion.

TEACHER BEHAVIOR

Dull	1 2 3 4 5 6 7 N	Stimulating
1. Uninteresting, monotonous explanations.		1. Highly interesting presentation; got and held attention without being flashy.
2. Assignments provided little or no motivation.		2. Clever and witty, though not smart-alecky or wisecracking.
3. Failed to provide challenge.		3. Enthusiastic; animated.
4. Lacked animation.		4. Assignments challenging.
5. Failed to capitalize on student interests.		5. Took advantage of student interests.
6. Pedantic, boring.		6. Brought lesson successfully to a climax.
7. Lacked enthusiasm; bored-acting.		7. Seemed to provoke thinking.

Stereotyped	1 2 3 4 5 6 7 N	Original
1. Used routine procedures without variation.		1. Used what seemed to be original and relatively unique devices to aid instruction.
2. Would not depart from procedure to take advantage of a relevant question or situation.		2. Tried new materials or methods.
3. Presentation seemed unimaginative.		3. Seemed imaginative and able to develop presentation around a question or situation.
4. Not resourceful in answering questions or providing explanations.		4. Resourceful in answering questions; had many pertinent illustrations available.

Fig. 3--Descriptions of teacher and student behavior.

TABLE 17

MULTIPLE COMPARISONS OF CLASSROOM BEHAVIOR IN FOUR HIGH SCHOOLS[a]

Type of Behavior	Order of Magnitude				F
	Lowest	Second Lowest	Second Highest	Highest	
Student Initiating Behavior	Thornton 3.39	Elmwood 3.44	Waverly 4.43	Dover 5.25	12.24[b]
Teacher Stimulating-Original Behavior	Elmwood 8.33	Thornton 8.83	Waverly 10.95	Dover 11.30	10.26[b]

[a] Based on Duncan's New Multiple Range test. Any two means not underscored by the same line are significantly different at the .05 level. Any two means underscored by the same line are not significantly different.

[b] Significant beyond the .01 level.

with regard to teacher and student behavior, hypothesis 3 is confirmed. The findings suggest that teachers at Dover and Waverly tend to be more original and stimulating than the teachers at Thornton and Elmwood, and that the students tend to be more initiating.

To provide examples of specific learning situations--some considered to promote creativity and some to stifle it--the descriptions of a number of classrooms are presented. These descriptions were drawn from information recorded on the Observation Schedule and Record and the Classroom Observation Record. For each classroom the ratings on teacher stimulating and original behavior and student initiating behavior are presented. An attempt was made to select for presentation those classrooms representing the extremes of the creative-noncreative continum.

Thornton

Classroom A.--Teacher A was rated 5 on stimulating behavior and 6 on original behavior. The pupils were rated 6 on initiating behavior. This was an English class composed of twenty-five students. The pupils entered the room and went right to work in a subdued and businesslike manner. At first the students worked individually, apparently according to some prearranged plan. After a time Mr. A interrupted, and explained to the class assignments that were written on the board. In small groups the class then worked on the assignments which related to a previously assigned reading selection. The teacher moved from group to group, assisting each group with its topic. The group discussions were orderly, a group leader having been decided upon previously. The investigator moved from group to group and observed that the students were highly involved and interested. The entire class then discussed all the topics that each group had been discussing. A student very capably led the class discussion. From time to time Mr. A made comments and suggestions. The observer was impressed by the maturity of insight exhibited by the students. This class was unusual in that there appeared to be very little teacher domination and considerable student participation. The number of interactions between students was extremely high; nearly every student in the class participated to some extent both in the small group discussion and in the large group discussion.

Classroom B.--Mr. B was rated 6 on stimulating behavior and 5 on original behavior. The students were rated 3 on initiating behavior. It is noted that the students received the following ratings on other dimensions of student behavior: alert, 6; responsible, 7; confident, 6; it is also noted that Mr. B received the top rating of 7 on eleven of the eighteen dimensions of teacher behavior. This classroom is an excellent example of one in which learning by authority is taking place in a highly efficient and effective manner. Mr. B is an outstanding teacher. The students, all academically superior, react very positively to this teaching. Mr. B possessed an unusual ability for lucidly presenting mathematical concepts of an unusually complex nature. Although this was undoubtedly one of the most outstanding of the seventy-seven classrooms visited, it is noted that very little of a creative nature was taking place. Quite likely, however, the way the subject was taught would lay the groundwork for future creative performance on the part of the students.

Classroom C.--Mr. C. was rated 2 on stimulating behavior and 3 on original behavior. The students were rated 3 on initiating behavior. The students in this class were involved in working on individual projects. From time to time Mr. C talked to the entire class, but for the most part, he worked individually with the students. On a number of occasions he used sarcasm and yelled at students. There was considerable pupil disruptive behavior, much laughing and whispering. One student was heard to comment in sarcastic tones, "You can't imagine how much I look forward to this period! It's the high point of my day!" During each of the three Observation Schedule and Record periods, the investigator observed that there was hostility shown by the pupils toward the teacher. This classroom was unusual in that even though it was organized in such a way that there was considerable pupil freedom to do work of an original and creative nature, there was very little evidence of creative production, due primarily, in the judgment of the investigator, to the personality of the teacher. Mr. C's hostility, unfriendliness, use of sarcasm, and occasional yelling created a tense and disruptive classroom climate.

Waverly

Classroom D.--This was an eleventh grade mathematics class consisting of twenty-three students of lower ability. Mr. D was rated 7 on both stimulating and original behavior. The students were rated 5 on initiating behavior. The atmosphere was relaxed and there was considerable humor. The teacher exhibited humor on numerous occasions and showed affection for the pupils. There was a high level of pupil-teacher interaction, with the students answering the teacher's questions chorally from time to time. Although the teacher was using experimental mathematics materials dealing with rather complex mathematical concepts, the pupils seemed to grasp the material very well and were very responsive to it. They appeared delighted with their progress. The investigator later learned that Mr. D had been involved in preparing the materials he was using as part of a university study group. He impressed the investigator as being extremely competent. He exhibited great enthusiasm for the subject.

Classroom E.--This tenth grade physics class consisted of eighteen students. Mr. E was rated 5 on both stimulating and original behavior. The pupils were rated 7 on initiating behavior, the highest possible score. This was a laboratory session in which the pupils were engaged in an experiment, using Physical Science Study Committee materials. The investigator was impressed with the number of opportunities for original student solutions to problems involved in conducting the experiment. Mr. E moved freely about the room, working with individual pupils and with small groups. On one or two occasions he talked to the entire class. Occasionally he exhibited humor. He was enthusiastic about the Physical Science Study Committee program, stating to the investigator that it offered much greater opportunity for student initiative. Even though the teacher was not considered particularly outstanding with regard to stimulating-original behavior, he had, in the judgment of the investigator, been instrumental in creating the type of classroom climate in which student initiative and originality flourished.

Classroom F.--This was an advanced placement mathematics course composed of seventeen students of high-ability who had been together as a group for a number of years. Mr. F was rated 7 on both stimulating and original behavior. The pupils also were rated 7 on initiating behavior. Mr. F explained to the investigator that this was "brain-teaser" day. One day each week was devoted to mathematical problems and puzzles. The pupils presented problems, some of which appeared to be insoluable, to the class for consideration. There was considerable discussion and a high degree of pupil-teacher and pupil-pupil interaction. The class was remarkably lively. Mr. F later explained that this particular group of students will have finished the text book by Christmas and will then proceed into advanced work.

Classroom G.--This class was involved in studying the civilization of a foreign country. Unique to Waverly School, this course was developed by Mr. G. He had devoted a tremendous amount of time in preparing the course, which included a complete study of the history, government, economics, literature, and art of the country. Mr. G was rated 7 on both stimulating and original behavior. The students were rated 4 on initiating behavior. It was a real experience to observe this teacher. Mr. G was extremely dynamic, tense, and nervous. During the class period observed, the works of a leading novelist were being considered. The teacher lectured for the entire period, frequently making undecipherable marks on the chalk board. The lecture was highly erudite and interesting, Mr. G exhibiting a phenonemal knowledge of the country under consideration. He moved restlessly about the front of the room, perching on a stool at times, scribbling on the board at others. He gave the impression of being a somewhat dogmatic individual. The pupils took notes during the entire period which was puzzling since there were no examinations in the course, the grade being determined from the results of student projects which had been approved by the teacher. The subject matter content of the course was extremely mature. This classroom is an example of one in which the highly stimulating and original teacher rather thoroughly dominates the situation, allowing little opportunity for teacher-pupil participation. It would be interesting to attempt to determine the effects upon student creativity of a course of this nature.

Classroom H.--This advanced history course was conducted entirely by the lecture method. The students made notes as rapidly as they could through most of the period, occasionally placing their heads on their hands, or gazing out the window. There was no pupil-teacher interaction. Although the teacher was rated 5 on both stimulating and original behavior, the pupils were rated only 2 on initiating behavior--the lowest ratings for the school. Seldom leaving the lecturn at his desk, Mr. H talked rapidly, with considerable gesturing and much animation. During one five-minute period the investigator tabulated eighty separate statements. The lecture itself was highly interesting. Classroom H serves to illustrate an efficient traditional course, in the lecture-assigned-study-recite pattern, in which there was little evidence of creative learning.

Dover

Classroom I.--Mr. I was rated 7 on stimulating behavior and 6 on original behavior. The students were rated 5 on initiating behavior. On nine of the eighteen dimensions of teacher behavior, the teacher received a rating of 7, the highest possible rating. Mr. I was an unusually gifted teacher. The period was devoted to reading and discussing essays the students had written previously. Although there was much pupil-teacher interaction, the teacher tended to dominate the situation. Mr. I was animated and enthusiastic. The content of the course cut across subject-matter boundaries. Formerly an English teacher, Mr. I told the investigator that he now felt confident in both English and social studies, feeling that an integrated approach was superior.

Classroom J.--This was a class in philosophy taught by Mr. I described above. The teacher rating behavior was identical with that of Classroom I. The pupils, however, were rated 6 on initiating behavior. There was a constant interchange of ideas throughout the period. Although part of the time was devoted to lecture, most of the class period was devoted to discussing Plato's Republic. The class was very informal. The pupils were more active and initiating than in Classroom I. They were critical and argumentative. One student asked, "Why are we bothering to read the Republic? Why not spend our time on something more modern?" The teacher's reply was that they were reading it mainly because it was an important milestone in the history of philosophy. In his judgment, anyone studying philosophy should be familiar with this book. It was noted that, in addition to the investigator, there were several visitors in the class including one of the art teachers and the vice principal.

Classroom K.--It was possible for the investigator to make two visits to this art class. The class consisted of ten students who were working on sculptoring projects. The teacher was rated 6 on both stimulating and original behavior. The pupils were rated 5 on initiating behavior. There were two university student observers in the class during the first visit. They disturbed the teacher on a number of occasions, distracting students by engaging them in conversation. The teacher exhibited some hostility and occasionally raised his voice to maintain order. There was a considerable amount of pupil interaction not connected with the project at hand. During the second visit the situation was quite different. Although he seemed to wear a worried expression the teacher was much more relaxed and friendly. Mr. K was a highly gifted artist. The ease with which the students produced objects of considerable artistic merit (in the judgment of the investigator) was remarkable. The shelves of the room were filled with student projects.

Classroom L.--This was an eleventh grade core class, consisting of twenty-two pupils. The teacher was rated 6 on both stimulating and original behavior. The pupils were rated 7 on initiating behavior. A student was leading the class in a discussion of topics to be presented to the student government. Topics under consideration included the twelfth grade curriculum (whether or not philosophy and literature might replace the core program), problems related to the student play, the possibility of donating money to civil rights groups, and suggestions for raising money. Mr. L served in an advisory capacity, frequently making suggestions and comments. The investigator was impressed with the efficiency of the group in discussing the topics. Obviously the class had had considerable experience in this type of activity. One student in particular who had been observed to be quite lethargic in other classrooms was unusually active in this one. Possessing a remarkable ability for producing ideas, he contributed the majority of suggestions for handling the various problems. It was noted that this student scored highest on the creativity tests for this school and third highest for all four schools. He had been recommended by a number of teachers and students as the most highly creative student at the school.

Classroom M.--This classroom consisted of thirteen students working on individual projects in a laboratory setting. The teacher was rated 4 on stimulating behavior and 5 on originating behavior. It is noted, however, that he was rated 2 on both the steady and poised dimensions. The students were rated 5 on initiating behavior. This situation was unusual in that although the activities in which the students were involved and the organization of the classroom were of the type considered to promote student originality, it seemed to the investigator that student productivity was stifled by the teacher. Although he smiled and exhibited humor on occasion, he showed considerable hostility toward the pupils, raised his voice in anger occasionally, made a number of reproving gestures and statements, and frequently found it necessary to assert his authority to establish order. The students were observed to throw objects about the room when the teacher's back was turned. The class was very noisy; singing and chatter were constant. Frequently the teacher got into arguments with the students concerning their projects. One student stubbornly refused to change his plan, even though the teacher argued with him for five minutes. Another student was interpreting the assignment in quite a novel and original way. But when the teacher discovered that the student had violated some of the requirements for the project, he informed the student that the work was unacceptable. The student spent considerable time attempting to obtain approval to proceed as he desired--but without success. The climate was one of uneasiness and tension.

Elmwood

Classroom N--This was a science laboratory with fifteen students. Mr. N was rated 5 on both stimulating and original behavior. The pupils were rated 6 on initiating behavior. Mr. N had recently completed a National Science Foundation summer program and was very enthusiastic about the Physical Science Study Committee materials the class was using. Mr. N worked with individual pupils and with small groups, answering questions, giving directions, and making suggestions. The students appeared highly interested in what they were doing; there was no evidence of inactivity or boredom. The teacher was friendly, helpful, and well-versed in his subject. The atmosphere was relaxed and businesslike. One student was observed to demonstrate to a group of students his original solution to a problem related to the particular experiment under consideration. Mr. N stated that the materials provided considerable opportunity for student originality and inventiveness. He showed the investigator some of the special equipment students had designed without specific laboratory manual instructions. Of the eighteen classrooms visited at Elmwood, this was considered by the investigator to be the one most conducive to the development of creativity.

Classroom O.--Mr. O was rated 2 on both stimulating and original behavior. The students were rated 1 on initiating behavior. Of the seventy-seven classrooms in which the Observation Schedule and Record and Classroom Observation Record were used, this class, in the judgment of the investigator, came closest to fulfilling the requirements for a closed system of education (Anderson, 1961). Even though the class consisted of only eight students, there was no teacher-pupil interaction whatsoever. Not a single student question was asked the entire period. Mr. O lectured directly from a textbook, making approximately fifty statements during each five-minute period during which tabulations were recorded. Poised, confident, and

> systematic, Mr. O seemed to be interested in the topic under consideration. The students did not take notes, but simply sat quietly with blank expressions on their faces.

Discussion

The above descriptions included examples of learning situations considered by the investigator to be the type in which creativity is developed (for example, classrooms A, D, E, F, G, J, L, and M) and the type in which it is not (for example, classrooms H and O). It is noted that the situations coming closest to descriptions of "high creative" classrooms were two physics laboratory periods in which Physical Science Study Committee materials were being used. Even though one would expect laboratory situations to have greater potential for developing creativity, it was observed that some of the art classes visited--where one would expect emphasis upon creativity--provided a number of examples where creativity was being stifled.

Additional Observations and Impressions

The following comments were written by the investigator shortly after completing the gathering of data in each school. Generally, they include a summary of impressions relating to the professional staff, the students, the school program, and miscellaneous events.

Thornton.--Most of the teachers were excellent. The following comments by the principal appearing in a bulletin to teachers provides insight into his personality:

> Almost any day now I will begin visiting teachers in classrooms. I was a teacher for twelve years. I don't know how good I was or how poor. I couldn't have been too bad because I enjoyed most of the teaching I did. I am sure I had some poor days (perhaps everyone does). I had other days when I sensed I really had those kids in the palm of my hand. Teachers have

> those days when it seems some intangible something (a genie?) takes over and you have the whole class fascinated with your temporary flights of inspiration. Those are the days when teaching is really a joy. (There are the other days.) At any rate, I want you to know that I do not make snap judgments. I want you to know you do not need to be nervous or "afraid." (I'm not an ogre either.) Kids should know why I'm in the room. It is to get a sense of how they are doing just as much as how the teacher is doing. After several visits I will arrange to talk with you and (I hope) compliment you on what I have seen and heard. I may have suggestions--I may not. To conclude--I do like to watch kids learn. I'm the kind of person no one is afraid of. I'm informal--easygoing--good-natured, etc., etc., etc. Sometimes I can't keep my big mouth shut in a class--but usually I'm quiet and everybody forgets I'm there.

The investigator heard one teacher comment: "You can tell the atmosphere in a school the minute you walk in the door. There is nothing more detrimental to good teaching than a tense atmosphere. I have been in such schools and I wouldn't teach there for anything." In the judgment of the investigator, there was a healthy atmosphere in the school. Although the teachers and students were very busy, they were friendly toward one another and did not appear to be under tension.

In most classes instruction was of a traditional nature--lecture-discussion-assignment. There was very little student movement in the classrooms. Practically no hostility between teachers and students or among students was in evidence. In only a few rooms did the seating arrangements depart from the traditional row arrangement. The school plant appeared over-crowded. Although the rooms were small, most of the classes visited also were small. Student meetings frequently were held in the corridors. The plant itself, although new, was plain, almost austere. The school had no auditorium. There was considerable competition for use of the conference rooms.

In the judgment of the observer, this was a school which made little deliberate attempt either to promote creativity or to stifle it. Some classes had elements of a situation that would develop creativity, but generally this was not so. However, a number of the teachers were highly imaginative and original, even though they taught by more traditional methods. There appeared to be little time for creative activities, due in part, at least, to the pressures to cover large amounts of subject matter.

Waverly.--The faculty at Waverly High School was of exceptional quality. One of the administrators told the investigator that there were no good teachers at Waverly; they were all excellent. The teachers were paid entirely on a merit system. Even though the average salary for the state is approximately $1,000 less than New York State, a number of teachers had salaries of over $10,000 per year. One teacher told the investigator that when he was hired he was told: "Don't come here if you are looking for a soft berth." Not only were there many evidences of the high degree of competency of the faculty, but there were indications of extreme dedication on the part of the teachers to their work and to the students. They worked hard and long. They were determined to provide the best possible opportunity for the students to get a good start in life. There was a high degree of mutual appreciation and respect between teachers and students. The principal was highly regarded and very popular. At a pep rally he was given several rousing choruses of "For He's a Jolly Good Fellow."

Most of the students were of above average ability.

Approximately eighty percent of the senior class would go to college. The students were very neatly dressed. Generally they had a well-scrubbed look, with very few needing haircuts. Extremely friendly, helpful, and courteous, they were openly enthusiastic about their school.

Students were grouped according to ability in most academic subjects. There were such tracking designations as advance placement, honors, "1" sections, "2" sections, and "3" sections. The teachers were given a high degree of freedom and autonomy in their work. One teacher had developed a course which was a considerable departure from the typical history course; the responsibility for learning was shifted almost entirely to the student. The school was characterized by many departures from tradition, such as student tutorials, cooperative teaching, large group instruction, and a number of experimental courses. The language laboratory was one of the most flexible the investigator had ever seen.

Dover.--The staff at Dover was highly competent and highly intellectual. A number of the teachers would be characterized as extremely progressive and liberal.

The students generally were well-mannered, friendly, intelligent, and interesting. They were very casually dressed, and many had been months without a haircut; shoes generally were not shined. Although a few of the girls wore an excessive amount of makeup, most of them did not even wear lipstick.

None of the classes were grouped by ability. The instructional periods were of varying length. The core classes frequently had double sessions, some running beyond the second period into the third period. There were no bells. The core classes usually took a break after the first fifty minutes. Generally there was much more teacher-pupil interchange of ideas than at any of the other three schools. This was particularly true of the core classes which integrated the English and social studies areas. Student desks were in a semi-circular arrangement in about half the classrooms visited.

There seemed to be a trend in the direction of becoming more traditional from the lower grades to the upper grades: the lower grades tended to be problem-centered, whereas the eleventh and twelfth grades tended to be subject-centered. In one core class, fifty percent of the time was devoted to English and the other fifty percent to history.

Although the school building was dingy and unattractive, nobody seemed to pay much attention to this fact. The library was excellent, although not very extensively used. Valuables were not left unattended.

Elmwood.--The teachers generally were highly competent, cultured, and well educated. Many of them were graduates of elite Eastern colleges. The pupils treated their teachers with considerable deference and respect; very rarely was it necessary for a teacher to ask for attention or order. There was little evidence of either pupil-supportive or pupil-reproving behavior on the part of the teachers. Classes were very businesslike. Not much humor was exhibited either by teachers or pupils in most classes. Attention by the students to the instruction generally was very good--although there were occasionally such indications of boredom as daydreaming, dozing, or inattention. It is noted that on the pupil initiating behavior dimension of the Classroom Observation Record only four of the eighteen classrooms visited received ratings above 4 (the neutral position).

Teachers were free to come and go as they pleased, as long as they met their classes on time. Some left the campus between classes. Teachers were observed to smoke in the corridors, on the school grounds, and even during class. Although there were restrictions upon student smoking, there seemed to be a tacit agreement that smoking in certain locations was acceptable. Although most of the classes were quite formal and traditional, some were much less formal than others. There was a definite hierarchy among the students.

Summary

The hypothesis that learning situations in schools judged to be high creative would have more of the features of a system of education that encourages creativity was generally confirmed. Instruction at Dover and Waverly tended to include greater provision for activities believed to promote creativity. The teachers were more original and stimulating and the students more initiating.

Student Attitudes

The results of the ratings of student attitudes toward their school experience are summarized in Table 18. The student essays were rated on a seven-point scale, with a rating of 4 indicating a neutral attitude. Table 18 indicates that the mean scores were above 4, that is, attitudes were in the positive direction. Thornton scored highest and Elmwood scored lowest, but the differences were not statistically significant.

TABLE 18

DIFFERENCES IN ATTITUDES OF STUDENTS TOWARDS THEIR SCHOOL EXPERIENCE FOR FOUR HIGH SCHOOLS

High School				Total (N = 62)	p
Thornton (N = 15)	Waverly (N = 17)	Dover (N = 17)	Elmwood (N = 13)		
5.33	4.82	5.06	4.46	4.94	.71[a]

[a] Not significant.

Table 19 indicates the numbers of students in each school indicating positive attitudes (scores of 5 and above), neutral attitudes (scores of 4), and negative attitudes (scores of 3 and below). It can be seen that the majority of students indicate essentially positive attitudes. An analysis by chi square was used to discover whether or not the differences between Dover and Elmwood were significant (Table 20). The proportion of students indicating positive attitudes at Dover, although greater than the proportion at Elmwood, is not significantly so. (It is noted that the small numbers involved decreased the possibility of obtaining significant differences.)

The fourth hypothesis was that highly creative students in high creative schools would indicate more favorable attitudes toward their schools than would highly creative students in traditional

TABLE 19

NUMBERS OF STUDENTS INDICATING FAVORABLE AND UNFAVORABLE ATTITUDES TOWARD THEIR SCHOOL EXPERIENCE

Attitude Toward School	High School									
	Thornton (N = 15)		Waverly (N = 17)		Dover (N = 17)		Elmwood (N = 13)		Total (N = 62)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Positive	10	67	8	47	14	82	7	54	39	63
Negative	4	27	3	18	3	18	5	38	15	24
Neutral	1	6	6	35	0	0	1	8	8	13

TABLE 20

DIFFERENCES IN ATTITUDES OF STUDENTS TOWARD THEIR SCHOOL EXPERIENCE FOR TWO SCHOOLS

Attitude Toward School	High School		x^2	p
	Dover (N = 17)	Elmwood (N = 12)		
Positive	14	7		
Negative	3	5	1.05	$> .30$

schools. The findings generally do not substantiate this hypothesis. It is noted, however, that the proportion of students at Elmwood classified as having negative attitudes, although not significantly different from the other schools, tended to be high; they contained more negative statements regarding the atmosphere of the school and positive statements regarding the academic program causing a neutral rating.

Excerpts from Student Essays

To make possible greater insight into the feelings of students about their high school experience and to furnish additional information about the schools, excerpts from several of the student essays are presented. These essays reveal the personal involvement of the student and indicate those aspects of the educational experience students consider important. In addition, comparisons of how similar problems are handled in different school situations are possible. In addition to providing examples of personal impressions of the schools, the essays add colorful detail as well. In reading the essays it was interesting to note how differently students in the same school viewed their school experience. Some felt there was too much pressure, others felt there was too little. Some felt that the school provided very little opportunity for social contact, others felt the emphasis on non-academic activities detracted from the academic areas. It is also interesting to observe how frequently several students commented on an identical activity. At Waverly, for example, the fact that students are penalized if they are a fraction of a minute late to class was felt important enough to include in a surprising number of essays.

In arranging the essays, an attempt has been make to place together those that indicate similarities and contrasts. For example, one student commented on the naked economy of the school building and the feeling that the ugliness of the building had a direct relationship to school spirit. The essay which follows it described the sweeping, rambling lines of its wooden, glass and brick structure which seemed to blend so naturally with its outstanding reputation for stimulating young minds. In some instances a cross-reference is made to another which provides a contrasting viewpoint. For example, in one essay the administration is described as very approachable. A cross-reference is made to a description of the administration at another school which describes a situation indicating that the administration is extremely unapproachable.

To maintain anonymity, most references to specific persons and places have been changed. The fictitious names for the schools have been used throughout. In most instances excerpts from the essays, rather than the complete essays, are presented. This gives the impression that some essays were much shorter than others, when actually this was not necessarily the case.

Thornton High School

> Student A.--The most outstanding influence on my education is the quantity and quality of teachers at Thornton. Not only in my senior year but in all the years and the departments there is at least one good teacher. In Russian we talk, swear, eat, and dance. In biology we are greeted with enthusiasm so unsurpassed and teaching so good that many of us are planning to major in biology. In mathematics difficult calculus statements are presented so clearly and effectively that we understand them even if we are asleep! Likewise, in chemistry and physics there are well-taught advanced courses for those who desire them. In English we learn to think and challenge everything--even the teacher's opinions. Moreover, on essays we can receive a good grade even if we disagree with the teacher. However, the school is not only calibrated for the advanced but also calibrated for the average and below average. One English teacher challenged his non-college class so well that they produced better poems and stories than his advanced section.
>
> The relationship between student and teacher is relaxing and suited for learning, too. Many a teacher will give extra without being annoyed even if we have gone to him several times before. In fact, one of our teachers produced a book to help us when we entered a math contest without our even asking her. Outside of school the atmosphere is the same. Whenever we meet the teachers, we always greet them and sometimes share one of their problems or jokes. Because classes are informal, we grow to like

the teachers not only as teachers but also as persons with problems and experiences similar to ours. In this atmosphere of friendship and respect we are able to grow and learn as students should.

The relationships among us students are important, too, in our education here at Thornton. We can always find a group that we belong in whether we are bright or dumb, sororiety or fraternity member or independent, sociable or square. We are as a whole fairly creative and are always thinking of new ways to do old things. We enjoy the challenge of advanced courses, which helps the serious-minded students work, as well as the competition of football, basketball or numerous other sports. Here at Thornton we are not afraid to work hard for improvements or survey the world with a critical eye. When our new high school was built without an auditorium, we began work on getting one. The auditorium entered into our student council campaign and students who later took the issue to the school board. However, not everything at Thornton is magnificant. We have our faults, our cliques, and our jeering odd-balls. But the overall atmosphere here is one that blends itself for learning about, growing in, and enjoying the world of today.

Student B.--Thornton is a school of extremes. The students range from the pupil interested only in his mental self to the pupil interested only in his physical self. The teachers, while insistent on our maintaining a high academic standing have few relations with the students, and seem uninterested in them as people.

The students interested in a high academic standing, are, for the most part, unpopular and uninterested in the people around them. Although these students are the core of Thornton's high academic standing, they have almost no social standing, and little influence on the underclassmen. The work of these students seems to be the work of a person pushed by his parents, and coddled by his teachers.

The students interested in their physical self can be divided into two groups, the athletes and the thrill seekers. The athletes are looked up at or down upon depending on their behavior off the playing field. The star who does not drink, smoke, or stay out all night after a game is only a star on the field.

The thrill seekers are the members of the fraternities and societies (I say members of the fraternities and societies because if you're not in one your actions go unnoticed, as those of a lower race), who want only a good time. These people are the social elite of the school; they determine the dress and behavior of the other students, both in school and out.

The teachers want Thornton to be "the" high school, but they are not willing to join the students in an effort to help everyone improve. The majority of teachers seem unwilling to spend extra time with the average students, or give a word of encouragement to the student who needs it. If the teachers would meet the students half way this school would be more unified.

These molds I have mentioned have given me a will to stand away from the group for a fear of being sucked and lost. These years at Thornton have instilled in me a dislike of being pushed along with the crowd by an impersonal overlord. I have always felt regimented, a victim of a scholastic assembly line, at Thornton, and await with mixed feelings of remorse and joy the chance to set out on my own.

Student C.--Our school is very liberal; almost every field of endeavor is open to the student either in or out of school from agriculture to sports to literary magazines to drama. The student council actually governs the student body on many issues; each student is recognized and treated as an individual; the faculty is genuinely interested in a person and his development and the student may receive guidance and instruction in any field of interest. The Thornton student is not forced to conform to any "herd" or "in group." The students and administration work together as a unit and the administration has earned a deep-rooted respect while instilling self-respect, creating social attitudes and encouraging intellectual fulfillment. Ours is truly a school worthy of Plato's Republic.

There is one point, however, upon which the school is weak. Under the burden of college preparation, creativity is somewhat stifled. Genuine creative thought, as far as literature and fine arts are concerned, is sometimes difficult to achieve. Only the person with a need for creative fulfillment who must create, finds time regularly for creative pursuits. A workable solution to this problem is beyond my comprehension. It is really a small problem in so much as so few are gifted with that inner drive or lust for creativity--there haven't been many Michelangelos or Frank Lloyd Wrights and they managed to survive.

In my opinion our school has reached its zenith in development. It could not go further without monopolizing too much of the student and, at the same, time, any less magnitude of development would be insufficient. Thornton has reached that perfect balance between physical, intellectual and creative achievement. We are proud of our alma mater with an affinity unknown elsewhere.

This "balance of achievement" is not, however, a minute by minute occurence, but a general statement. I'm not trying to set up Thornton as perfect, for that is impossible. I'm merely attempting to give an overall view of Thornton as Edith Hamilton gave of Greece. She and I overlooked certain imperfections, but they were not ignored; they are of little importance in the final balance.

Student D.--The student body at Thornton, which is what a student is mainly concerned with, is divided into two sides or groups.

The first group is made up of kids who would say that they were "in things." It is comprised of the boys and girls in the fraternities and sororities, some atheletic stars, and some other girls whose physical attributes include them in the group. There are also other boys in the group who are part of the group because of money or the friends they have. These kids lead lives that are punctuated by parties at the home of a member of the group whose parents are not home. Because there seem to be two or three smaller groups in this larger category, the whole group doesn't go to one party at the same time. There is, however, more communication or exchange of dates, etc., between these smaller groups than there is between the large group and the other group in the school. Communication (for lack of a better word) between the two groups, aside from casually, is almost nil. A very strong characteristic of this first group is a very strong anti-intellectual feeling. Working hard, except to pass an exam or test, is scorned as being "for those brainy squares who spend all their time in a book."

The second group is not really a group at all, or rather is not unified as the first group is. It is more accurately described as all the kids that are not in the other group. This second group contains many small cliques, and they engage in activities quite different from the first group. The activities center more around school than anything else. The first group looks down upon the second group as being too tame, or square, or too goodie-goodie or whatever you would like to call it.

I feel myself a part of neither the first group nor any clique in the second group. Because of this, I have few close friends (although some "friends" in the first group are the type I can do without) and am, I believe, a little more individualistic than many kids in the school, though not, by far, the most individualistic. This, I think, is the situation of a great many kids at Thornton, who because of the values of the first group (and this does, somehow, affect the rest of the student body) and the cliques of the second group, are more or less forced to be individualistic.

Student E.--Probably the most important factor in the shaping of education at Thornton is the ever prevalent pride in being able to say, "I'm from Thornton." A definite feeling sweeps over us as the importance of our traditions, the time of our lives, the friendships we've made all come to mind at once.

The attitude of the kids at Thornton toward most of our teachers is one of admiration. But more important, during four years of high school many become very dear friends who are as difficult to leave as classmates at graduation. Even teachers whom we do not necessarily have in class are openly interested and will give their time and friendship when we need them. If and when students refer to them by their first names, it is not from the usual disrespect but it springs from the liberal atmosphere and closeness of students and teachers. First names and nic-names are almost terms of endearment, but they are never used in speaking to our teachers for this would certainly be stepping across the line of respect.

Student organizations and activities play an important part in the shaping of our education at Thornton. Students do have a voice and they know it. There are very few things in which students could not effect changes if they would take the initiative. Student organizations, and especially student council, reflect the spirit at Thornton. This spirit permeates everything and everyone at Thornton, students and teachers alike.

Our administration is always approachable and is highly respected by all students, for we know that when we employ reason and logic we are heard out and either granted permission or are given sound reasons for refusal. Jointly, our students and administration arrive at decisions in this way.

(Compare the above description of the school administration with that of Student AI at Elmwood, p. 134.)

Probably this has seemed like a very glossy description of a public high school. Therefore--we must say that we also have a large minority who find school difficult and seek different goals. They attend school and classes in hopes of finding some springboard for their lives. Their courses may not be a challenge to them but they feel they are doing something. Perhaps they smoke or drink or both, but these people, too, are part of the shaping of any education. What a gap we would have if we had not known many of these kids whose aims and objectives seem so different from ours.

There is much which we can do as a school and when we feel there is not that will be the time to worry. Thornton is an exceptional school because its educational arms encompass more than our books and classes.

Student F.--Thornton has programs similar to other schools I have attended, but not quite as extreme. The typical students at Thornton would easily be overtaken by the speed and pressure at the Connecticut school. Thornton has one outstanding quality which the Connecticut school lacked--a real spirit and tradition. This tradition provides a strong binding power among the students at Thornton. Loyalty to their school tends to make the students loyal to their friends. It is too bad that not more students have this same loyalty to their education. Another interesting difference between the two schools is that in Connecticut the students are proud of the time they study for a test. At Thornton I too often hear, "I only studied twenty minutes" when I know they have studied longer. They are actually ashamed of the time they spend on education.

Student G.--I have been attending the Thornton School System since kindergarten, and naturally, the shape of my education has followed the policies of the school. Within twelve years Thornton has evolved from an average school with average facilities to an excellent, but "high pressure" school.

Most of this pressure is concentrated on receiving high grades and entering college. By high grades I do mean B's, but especially A's. Even though the teachers insist that, "the mark isn't as important as the learning," it can be noted that at Thornton the students with top grades are in "advanced" classes and receive accelerated courses. This, in itself, is not bad, but the classifying that begins in eighth grade hampers many students from really progressing. They feel that they have been typed as "middle grade," and become resigned to that place. This positive pressure to receive high marks can thus become a negative one.

This pressure has made me work extremely hard to achieve good grades. At times, however, I wonder if it is all really worth the time and effort spent. Admittedly, I am almost as interested in the mark as I am in the learning. If I had been educated in an easier school system, I feel that I would not have put as much effort into school. I do, however, enjoy the classroom discussions and school in general. I have read books that my parents have never heard of, and I have studied concepts that they have only touched. Therefore, the Thornton pressure system has given me a good education and has given me the desire to get more.

Student H.--My education has been in the form of a helix --an ever widening spiral encompassing all aspects of growth. This helix shape has effected my personality and its growth in many ways.

. . . .

I know that every minute wasted in class is a personal loss as well as a general one. The times when a teacher is unaware that he is being lead into diversions which are irrelevant infuriate me. A deep rousing discussion in class, on the other hand, is very stimulating; but even then there is a time and a place for discussions and that time and that place is not always a classroom during a class. This is the place where the biggest drawback lies. There is no time other than classtime when any one group of individuals is ever in the same place with time and an idea ripe for discussion. There is time at lunch but not the atmosphere, idea or group; and there's the group but not the time and the idea before or between classes. There is no time then when a student can think deeply as a part of a group with one idea in mind except class time--every student has responsibilities. The first ones usually are household "chores." Eventually however they grow to include homework, money and more important personal moral code. A person who is "growing" with his education is accepting more responsibilities and thereby fulfilling more of his obligations.

Student J.--For a Thornton student the living standards of the community tend to shape a student's education and are a basic cause for an educational void.

Many students, challenged by education, react vigorously. At this school, many students start their college careers. However, the brilliant student is found to be totally undeveloped in sensitivity to life. The high middle-class of this area, very biased in their tolerances and intolerances, have created a protective covering of ignorance. This cover is evident in the student's attempt to study the humanities where people and ideas are important. Most Thornton students have never experienced anything but the most acceptable forms of education, for example, travel abroad. There is a great unawareness of the meaning of self-dependence, unpleasantness and the varieties of peoples and ideas which are totally foreign but still very acceptable. For the academically minded, this shell makes all other education a little superficial. Advanced English classes delve into the meaning of life through fiction, but the student has nothing to relate these experiences to. Thus the capable student is deprived of education, which he could put to good use, by his surroundings.

For the socially oriented student and the semi-serious student this affluence produces more evident effects. It is necessary to be a little dogmatic and classify students at this school as the extremely capable who seem to be concerned socially very little and all the others who take education at its face value. Then, for those students who are only partially concerned with education, their surroundings prevent a possible awakening to life and prolong a period of frivolity. For this type of student, education at Thornton is an undenied right which all are entitled to. This student accepts for granted that he deserves, with no effort on his part, all the benefits Thornton can spoon feed him. The affluent community has provided a set of beliefs, comforts and money without demands on the student. Laboring under this handicap, many students impassively know nothing. The average student in a less desirable area has a sense of purpose gleaned through his knowledge that life requires work. Thornton's average student sits back, never realizing the magnitude nor the immensities of life.

The total effect of this condition is hollowness. For the bright, capable student, there is a void of knowledge to which he can relate what he learns. Thus, the total effect is an incomplete education which has a hollow sound. There is the ability, the facts, the opportunities but not the personal experience able to make fact real. For the average student, there is never even a partial awareness and the vast opportunities of Thornton are lost completely. Thus, there is a void in the communities compliment of its school.

Student K.--We call it Thornton. It represents meaningful things to us--loyal friendships and companionships, sports and dances, loves and laughs. In our minds it stands for important things--the necessity of education, the importance of truth, worthwhile goals for the future. It is our school. It is our education. From it we receive the lessons of life and the lessons of learning that help make our lives purposeful and fruitful. It is the vital ingredient in our transformation from immature youngsters to responsible adults. Education makes us aware of the life around us--its true nature and our part in it. Without our school, without our education, we would not be able to attain our goals, to realize our dreams and to become the persons we wish to be. Our education is exciting! It's stimulating. It serves to make us exciting, stimulating individuals. Now, as teenagers, our school, our education is our whole existence. In years to come, it will be just a memory, an omni-present reminder of what it was that made us what we are. Yet now, its shape will become our shape, its emphasis, our emphasis, and its significance our significance. At Thornton, education is the start of new purpose and increased knowledge. It is the beginning of life.

Waverly High School

Student L.--To understand the education one can get from Waverly, it is necessary to examine its environment, the forces which make Waverly (and therefore the students) what it is.

Waverly is a small, rather exclusive, very desirable, semi-suburban town which has often been called one of the cultural centers of the state. We have an excellent free museum where children can take courses in creative art and poetry. We have a lecture series where townspeople can hear famous lecturers at the town hall for no charge. These opportunities are typical of those offered in Waverly, and clearly affect the attitude of our parents, and therefore, our school.

Waverly High is an excellent school. We are all aware of it. Our faculty is outstanding, and the effect of its quality is shown in the students. We, the students, are constantly winning awards for scholastic excellence. The National Merit scholarship winners are numerous. Our math team, I believe, was undefeated last year. We are basically an academic school. Living among students who feel for education and knowledge for its own sake leaves a definite impression on everyone's mind.

The school is trying to be informal. We often talk for long times. Eighth period was set aside for extra help and these discussions. In class most of the teachers strive toward discussion to bring out free thought and originality. It is only through our informality that this is possible.

Another factor which we are aware of, and therefore shapes our education, is a feeling of the naked economy of the building. You cannot help feeling that many pennies have been pared off the building funds. This may seem minor, but to me the ugliness of the building has a direct relationship to school spirit. I think that in a wood panelled school we would have a school spirit which is lacking here at Waverly.

Another factor effecting my education is a result of many of the things mentioned before; that is that there is relatively little vandalism or fighting in the school.

Something which constantly annoys the students here, and sets them apart from certain of the faculty members is the corridor pass system. Many of them refuse to allow to us enough maturity to get to class as quickly as possible. Instead they count the seconds you are late and mark down your name and send you to detention. To the student it is humiliating and senseless. It is as if the teachers were playing a foolish game with the objective to "catch" as many students as possible.

With these factors mentioned, I return to the base question of the shape of my education. My education has been aimed toward creativity, for that is what I enjoy. My English classes for the last two years have involved tutorials, analysis of authors based upon months of study. Before that I had an English class which stressed the writing of original prose and poetry.

The important factors which have shaped my education include: (1) my environment, the town of Waverly; (2) an excellent faculty, one with energy and enthusiasm; (3) informality during class--military discipline in changing to class; (4) the nakedness of the building; (5) the presence of students who are nationally recognized scholars; (6) a championship soccer team; (7) a lack of delinquency among the students; (8) the youth, and therefore closeness of many teachers.

Student M.--School has never been a place to learn. A few people have taken advantage of the facilities offered, but I think most students have gotten the knowledge they use from outside of school. What I mean by the knowledge they use is how to buy food, how to discover bus fares, and how to approach a problem. School has admittedly supplied some basics, such as arithmetic, writing, reading, and driver education, but its other courses go to waste and there is no reason why learning arithmetic and reading should take twelve years.

I think the reason that learning reading and arithmetic does take twelve years is the artificialness of the atmosphere in school and the psychologically weak system of grading. The artificialness of atmosphere comes from the concentration on senseless fun, as opposed to the fun of discovery. The system of grading is not a good learning incentive because it may punish those who have tried and reward those who haven't and also because it usually judges between people, and because it doesn't reward every small accomplishment (most people are taught not to supply their own rewards).

Teaching machines are more effective because they reward every accomplishment, the reward being self-given by the learner, because they don't judge between people, and mostly, because they are more simply and obviously practical: they are a problem to be solved. Machines are more constructive, they make evident the idea of doing what one can. Schools today teach an amount disproportionately small to the percentage of time they consume. I haven't mentioned anything about social life because this is just part of human nature and its misunderstanding. People can learn patterns but not wisdom.

Student N.--The initial image of Waverly was bright, creative, and new to me. In my mind the sweeping, rambling lines of its wooden, glass and brick structure seemed to blend so naturally with its outstanding reputation for stimulating its young minds to great goals and achievement. "Just what I needed! --Made for me!--Now, finally, I will become a student!" I sang to myself. A great challenge awaited me then, and to the surprise and delight of my parents and myself I did respond, by gosh, the traditionally unturnable new leaf, was turned.

Student O.--However, if a discussion runs a few minutes after class, and a student arrives a few minutes late at the next class, the teacher too frequently takes unnecessary disciplinary action. This is discouraging the interest and destroying the atmosphere of the school as I like to think of it. It's very disconcerting to be very involved with a thought and then have it crushed by a petty regulation, such as a yellow slip of paper which is soon to be forgotten wherever it is.

Student P.--To me the purpose of the school is to make one want to learn and know. If this is achieved, there is no longer need for "a school." But I believe that the majority of the students here resent the enforcement of rules and regulations, and are too preoccupied with this resentment to realize why they are attending classes for eight hours every day.

Student Q.--Somewhere when I was very young--probably while attending grades 0-4 at a very "progressive" type private school --I realized that things in my head could not be comfortably matched exactly with the things in anyone else's head, even to the smallest detail--and I decided to let my teachers (the world) merely point the way--likely it is east to England--and that I would get there by myself. And roughly, that is what I've been doing--and that is why I am not number one in my senior class--

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if that is desirable--in terms of finding better guides I suppose it is.

Student R.--To use an analogy to fit the phrasing of the question, the "shape" of my education is a circle, where the bulk of my learning experience has been apart from, yet revolving around, the center, or the school classes. I will begin this story with the center and then progress outward to my real learning experience.

On the whole, the school tends to be broad-minded, more open than most to new ideas. In most history courses, the criterion for a grade is not whether the student arrives at a certain truth on an exam paper but rather by the way he defends his own truth. I am interested in history and English, in which I do fairly well, and philosophy which isn't taught but to which I was introduced through reading in a French course. The school is very broad-minded, undoubtedly a reflection of the two communities, they are equally broad-minded.

One of the greatest factors in my learning experience is the "shape" of the crowd I travel in, and the "shape" of me. I am one of the "charter members" of the Waverly Intelligensia, a more or less loose group composed of the upper five or ten percent of the senior class. We live largely in a world of ideas, some more than others. Of about fifteen students in this group, I think the most, or I live more in a world of ideas than the others. In this group, living in a reality of ideas I am somewhat of an outcast. Whereas the group thinks themselves very broadminded there is a hidden closing or sameness in thinking. Most of the group are liberals; I am a "radical rightist." I am so far right that more ignorant students consider me a fascist. While most of the group are agnostics, with several devout Christians, I am an atheist and the only one of the non-believers who will publicly denounce religion as an "unwholesome, evil, and corrupting influence." While many of the intelligensia are members of the Student Council, I am an outspoken critic of the Council, arguing for complete aboliton of it. This is all background, or an actual part of my learning experience.

Most of my formal learning is got by outside readings. I get "bug" on one aspect of something and will read two or three books on it until I get tired or temporarily satisfied. This reading takes precedence (for me) over all other school work. I have failed numerous math tests because the night before I found history or philosophy more interesting. This outside reading is confined almost exclusively to history, philosophy, and English; I never do extra work if I can help it in science or math. Of subjects I have no burning interest in I try to get what I want out of them. If nine-tenths of French is a frightful bore, I try to get the other one-tenth and generally barely pass the other nine.

Most of my learning experience is self-centered, in which I do what I please with the opportunities presented me and not do what I please. I have no use for much of the crap I learn, but I get a kick out of it. It's better than glue-sniffing. I consider myself a product of my environment and taking off from there am further propelled by it.

Student S.--The shape of my education has been the amassing of a tremendous amount of facts, theories, ideas, prejudices, concepts--knowledge. I have reached the position where I can crack an 800 on the College Board Advanced Math test and I can almost write a sentence in decent English (you will not find one here, though), etc. for biology, chemistry, physics, German, and history. In short, my education has been a very full one as for knowledge, ideas, and the ability to think and analyze goals. Here at Waverly we are really pushed to do work. I spend five or six hours a day on homework and every teacher is screaming for more. Add to this an enormous load of extra curricular activities and there isn't much time left.

But only one of my subjects, history, has any real meaning to me. It is true that I occasionally get interested in math, literature, physics, and German; but really not very much and definitely not as much as my teachers of these subjects would like. History I enjoy; I love to read it. But I can't read as much as I would like because of the other subjects. If I had my way I would not study anything but history and other things related to it. But I can't do this. I must master the principles and concepts in my calculus and physics courses, even though they mean very little to me. I am enslaved by a system which swallows great portions of my life. If I forget about other subjects, I will not be able to go to a decent college. My parents, teachers, and everyone around me will have fits. But I do not like this, large sections of my life are slipping by; they are gone forever. My time is limited, I don't want to waste it on things which don't mean much to me. I think a solution to my dilemma would be to severely limit the number of major courses one can take in his last two years, say a maximum of four non-honor majors or a maximum of three honor courses. This would be a tremendous improvement and would get rid of much of my anxiety. And this would make my "education" truly more enjoyable and more meaningful to me.

Student T.--Here we run on a no-bell system which means that instead of having bells ring when the classes are over the students just leave. This was started because the students complained that the bells interrupted their train of thought. This was especially true during the time when half the school went to lunch and the other half to classes. Because of the time factor bells dismissing first lunch would ring in the middle of some classes. One Joker in our class made the apt remark that for thinking up this system our Principal was awarded the "No-Bell Prize."

We have newly established a system known as student monitoring. The students take care of the study halls, give corridor passes and take attendance. This releases the teachers to do what they need in order to prepare for the next class. This system has worked out quite well.

Student U.--The main affect on my education has been the feeling of intellectual segregation present at Waverly. The so-called "bright" students are put in special classes and only in homerooms do we ever see other people. I personally know very few people in my class, yet I am on the school council, one of the "ruling elite." The people we associate with are pretty much the same as we are, same home background, same school life, same future plans. I rarely get to talk to anyone different from me.

In relation to this, there is very little social life, probably because we spend so much time with each other during the week we don't want to see anyone over the weekend. This tends to concentrate our lives more and more on our scholastic activities. In fact doing homework seems to be the whole point in life around here. Five hours of regular work a night plus writing papers takes up quite a bit of time. I would very much like to go to the city to the art museum, or the symphony, but it seems every time I go I end up in the library studying. I'm not really complaining though. It is good "practice" for college life, and "they say" it develops will power.

As to the shape of my education; I feel it has tended to be liberal (at least to me). Most teachers here give you ideas to accept or reject as you like. Nothing is ever forced into you. If you want more help, explanation, or work than is available in class, you can always come in after school. We're encouraged to think for ourselves and if we don't like a course we're free to tell the teacher so. For example, I'm going to Mount Holyoke to major in English but I'm taking a calculus course here. I don't like math and I told my math teacher so. He agreed with me that it wasn't necessary for me, but he encouraged me to finish the course so I wouldn't have to take it next year. Our history teacher is one of the most liberal of teachers. His main aim in the course is to "free us from bondage" and let us do what we want in his class. Therefore, there are no homework assignments, no quizzes, no tests, only papers, two each quarter, written on whatever phase of history interests us. Grades are meaningless to him and he tries to avoid any mention of them.

. . . .

These have combined to make me as an individual at least, partly aware that there is more in life than books and parties, studying and fun. Though I am fairly conservative and sometimes a little shocked by what some of my liberal friends say, I know that liberalism exists. By knowing people who present all sides of a question, vocally if not intelligently, I am able to see things in perspective. Since we are expected to do much of our work, especially that of writing papers, I have learned to think for myself and not let other people tell me what to think. This bothers my parents no end because instead of agreeing with them when they voice their opinions I question them.

Student V.--Seminars at Waverly are of a common nature. Many times a history course includes a weekly seminar involving an entire class. Elements such as this encourage the student to be able to express his personal opinions well and also to be aware of the validity of what others have contributed. A seminar at Waverly will usually not solve a problem. Rather, it will give every student an opportunity to view the problem with newly acquired (and frequently varied) insights.

For the most part, English courses on the senior level at Waverly are based on independent tutorial study. The student thus disciplines himself to worthwhile study time, and becomes intellectually mature enough to be able to cope with a full college program, without any major transitional problems. Again in these classes, the emphasis is on the creative; the imaginative. And again, those who are able to express themselves in this way, and effectively, do better than in the alternate case.

Strangely enough, a Waverly teacher welcomes and even encourages a dissenting opinion--for here a student is forcing himself to be imaginative in expressing this opinion. Many faculty members will accept a dissenting opinion as a sign of progressive thought and independent action.

Since emphasis at Waverly is on the imaginative and the independent, it follows that individual relationships between teachers and students are frequent. In these cases, the student has brought his intellectual level of achievement up to one which will aid communications with that of the teacher.

This has been the shape of my education: I have been encouraged to avoid a narrow mind in any experience I might meet, whether academic or social. I have been encouraged to create, to imagine, and to, finally, produce. To extend this form of education to an idyllic state would mean the disappearance of a bias or a prejudice; and the emergence of an all-enveloping mind that could be trained to accept what is, not for the right and wrong in it, but merely for the existence of it.

Dover High School

Student W.--At the start of the ninth grade I transferred to Dover. The main reason for the transfer was the bloated numbers of students at the high school where I would have gone had I stayed in the public school system. We chose Dover because it was felt that here a student could get individual attention where academic situations were involved, and could profit from a more rounded education in that more attention is paid to the elective program.

While it is true that here the student is treated like a sensitive individual rather than just another face with an 87.5 average, I feel that this perhaps has not been my greatest gain here. The whole atmosphere among the students is one of intellectual curiosity. To clarify myself, I will first relate an incident which occurred while talking to my neighbor, who goes to another school. He said that the competitive situation there had gotten to the point where he begins to go to school for marks with learning being just a by-product of the high average.

That situation does not occur at Dover, although not because of lack of competition (which, though reduced, is still present to some degree). I think it is because the students themselves have a great desire for knowledge. For example, while at some schools the lunch period is reserved for Mantle's batting average and dirty jokes, this is not so here. Instead, although Mantle and dirty jokes become occasional topics of discussion, there are other things, such as philosophy and literature, which are frequent subjects for talk. In fact, a sort of competitive system is present by which you are pressured to know Joyce or Spinoza or else you are out of the discussion. This has its drawbacks, however, because it tends to breed an ill-founded "intellectual snobbery." For example, I have recently caught myself looking down in my own mind on some of my public school contemporaries as "naive" and not understanding such things as politics, psychology, or literature as well as I do. This is a bad habit which I am trying to correct.

The individual human being concept which first led me to come to Dover is indeed a big factor in school policy. However, it is not in such things as personal student-teacher relationships, although important, that this becomes most evident. It is rather in the attempt at developing a sense of adult responsibility. For one thing, the student is permitted much greater individual freedom than what is usually allowed in schools. This is often misunderstood by people who do not have much relation to it, with the result being the common mental association of progressivism with extreme non-conformity such as bohemianism or political socialism, even communism. Although there are undoubtedly some extreme elements involved in the progressive movement, it is foolish to call this typical.

I personally think that this individual freedom is a wonderful thing provided that the students are of a serious nature. It develops a sense of responsibility in a number of ways, such as cultivating a sense of leadership through student government. Such things as the permission of smoking, which is strictly bannned in most schools, helps serious students to maturity by giving them the freedom of choice in important issues. I chose not to smoke, but I surely would have realized that adults considered me not yet mature enough to decide a major issue about myself for myself (therefore tending to keep me immature and resentful) if I had not been given the choice.

In summary, I feel that my high school education here at Dover is preparing me very well for my life as an independent adult in the outside world. Academically, it has prepared me well for college and beyond, but, more important, I feel that it is helping give me a mature sense of values which is so important in today's world.

Student X.--When one enters Dover for the first time, one almost instantaneously begins to feel the warmth and good naturedness which enhances the school. I came to Dover four years ago, from a disciplinarian-like, all boys school. The change was so great that I could not believe that a school such as Dover could exist. The friendliness and comradeship among the students and between them and the faculty was unbelievable.

Another significant difference between my former school and Dover was that Dover believes in leaving the individual on his own initiative instead of forcing him to swallow a certain amount of facts at a certain time. Assignments are given in advance, such as long term reports, and the students are expected to allot enough time within the time span given for the project to be done. There is a closeness, a warm informality between student and teacher which is perhaps the most wonderful aspect of Dover.

One more attribute of Dover is the school's nonchalant attitude towards the student's dress. The kids may dress as they see fit, but contrary to much skepticism that such a freedom of apparel would be much abused, the Dover students, for the most part come quite decently dressed to school.

Dover, in only four short years, has given me the basis that I feel I will need to lead a constructive and beneficial life.

Student Y.--My education throughout my life has been progressive. The elementary school I went to based its teaching more on the individual and one's creative ability. I came to Dover feeling that this high school was one of the schools with the teaching ideas closest to those I had had earlier.

I have found that Dover has been quite different from elementary school in the way it is set up, the whole program, in a way, being more enforced. The staff tries to give the student enough freedom to think and act for himself and develop his own sense of judgement, yet the rules are set down and people are expected to stay by them, etc., sometimes overlapping to the less progressive side.

I think that Dover tries to teach the individual in such a way that he uses his abilities as best he can, putting questions, problems, etc., in such a way that he will want to answer them and thereby letting him use his ability as fully as he can though there is the goal for which they strive, with some individuals The interest, response and net result has not been, I feel, as great as they had hoped. C'est moi--

Student Z.--The shape of my education has not only come from school but home. My parents are near perfectionists and until I became aware of their reasoning, I tried to meet their standards. My study habits, the most important part of my education, were obtained in grade school. I was sent to Inglewood Academy on Long Island because it was reputed to be one of the "finest" schools and because my parents did not want to expose me to what they called the "element" of public school.

I was not old enough at the time to realize the great competition and superior attitude within this school, but it did teach me how to work. At the end of fifth grade we moved to this city and I entered Hudson School. I was put in the seventh grade and found older people much more compatible than those of my own age. It was about this time when I realized my parents' motives. I was something they could brag about and I didn't like it.

Hudson also was a very competitive school and after a while I became aware of this. At first I didn't mind but as I grew older and more mundane I regretted my parents' choice of schools for me. In the beginning popularity and clothes were the basis of competition; by the middle of eighth grade I was adamant about switching schools. My parents, however, were even more stubborn and I remained in Hudson. In high school competition within the conservative student body increased. From the day we entered ninth grade all we heard about was that if we didn't work like dogs we would not get into college, and everyone who graduated from Hudson went to college.

The students did not know what to do with themselves unless they were competing or being malicious to someone. I am very thankful that, although I was friendly with these girls, I was able to observe their activities. In ninth grade I was a part of their rat-race because there didn't seem to be another way out. Being a small school, Hudson should have had a warm congenial atmosphere. This, however, was not present and it would have been a disaster for a senior to be nice to a freshman.

By the time I was in tenth grade I had some pretty stable views on life. These were too liberal for the Hudson students and I felt as if I would have a nervous breakdown if some of the pressure were not removed. I realized I would have to use drastic measures to receive my parents permission to change schools. I threatened to fail out and go to Wilson. Not believing me, my parents called my bluff. I proceeded with my threat and I was finally allowed to go wherever I wanted. I don't think Hudson helped me at all because the atmosphere was not conducive to work.

Now I am enrolled in and attending Dover. It is a giant step in the right direction for me. Here is a place where you are what you are and you are accepted for yourself, not your clothes or marks. I enjoy working here because I know it is for myself and no one else.

Student AA.--My education has been molded more by an intense desire, within myself, to learn than by any external stimulus. Learning extends beyond the mere accumulation of knowledge. Learning cannot be disassociated from being, for it is essentially a growth. An assimilation of ideas, an understanding, a response, a ferment, and ultimately an awakening of the power to create. It is futile to attempt to limit learning for it denies its essential quality of fusion. It is because of this that I have often responded to "school" with a hostility, viewing it as an inhibitor of learning because of its method of direction, filtration, analysis. To learn is primarily to awaken oneself on an essentially intellectual level, to respond to sensations, to sound out, within oneself, the interrelationship between oneself and the world. To do this one cannot desert the world in order to be educated into it. It is not a process of initiation but of assimilation. Because Dover itself is characterized by a fluidity and a sensitivity it has helped me solidify these feelings. The shape of my education is amorphous, because as an individual I must continually change, expand; its effect is unascertainable for it must never end.

Student AB.--After graduating from junior high school I spent my sophomore year at the Irving High School. My reasons for auditioning for the school were that my brother had gone there and found it to be a decent school. I had a mild theatre interest and I reasoned that with the academic standards there I was sure to be a big fish in a little pond. I couldn't have been more wrong. First of all my schoolmates were anything but the interesting theatre types I expected. The level of discussion was such that I found I was compelled to watch "Ben Casey" to be able to participate in a "meaningful discussion." The academic subjects were as stimulatingly taught as were the discussions and I found my motivation on the decline. My marks slipped in direct proportion to my growing dread of each approaching day. My vocational courses were taught by frustrated thespians who grabbed the stage at any possible chance. In English we spent four months on Silas Marner (a really top-rate thriller!). In math we were taught by a young scared teacher who was as old as some of her more experienced pupils. In French I spent the whole second semester staring at a beautiful dancer who sat across from me and dreamt of speaking to her. I think the most constructive and meaningful experience I had was a game we would play with the speech teacher. We would count how many times this expert used the word "well" in a forty-five minute period. She strove for two months to better Babe Ruth's home run record of sixty, and she finally surpassed our fondest dreams with a smashing eighty-eight. The school and I decided by mutual agreement that I would not lighten their halls next year. I did a lot of lighting the halls with my bright face for I was constantly being ejected from the classes. For creative people they sure had little sense of humor.

At Dover I made a remarkable readjustment. I felt like one of those chain smokers in the Kool cigarette commercials who "came up,. came all the way up." I fit in well with the Dover curriculum and especially enjoy the kids. My horizons broadened from "Dr. Kildare" to "Stoney Burke" and consequentially I made friends easily. But I really discovered how stimulating a course and a teacher can be, especially if there's a "kaffee klatch" to discuss the problems and concepts of the course with. And so, in these troubled times, I stand at the threshold of a new era in my existence: college. I stand ready to meet any challenge encountered on the road of life and to remember in the words of John Paul Jones that "I have not yet begun to fight."

Student AC.--The first thought that comes to my mind in regard to my education is that of "pressure." I have always been pressured to get good marks and grades so that I might go to a good college and eventually "succeed." I was told that although this was the wrong way of looking at education, we must accept the philosophy of education dictated by the majority of society, but education for me has not only meant tests and other pressures. Part of my education has helped me to realize effectively just what I think wrong with the philosophy of education dictated by society and it has also helped me to look at myself sincerely. Perhaps it was coming to Dover that influenced me in relation to education and my first reactions after seeing this school were those of the complete freedom of the students, but still not until about a year ago, although something had been bothering me for a long time, did I realize that even at Dover the type of education I was getting was still imbued with the competition and conformity that plagues our whole educational system. Perhaps this is a basic fault inherent in society for so long that it will not ever change, but I think it can be helped. Perhaps my true realization of the faults of the educational system I live under came when I realized that the great people produced by it were not the result of it. In other words, what I consider the great people were the really creative few who were able to overcome the obstacles of an educational system based on the doctrine of putting as much information into a person as possible.

School for me though, has had its creative aspects and it is wrong for me to condemn Dover, because it is paradise compared to many other schools. I also find the Dover student, on the average, much more "creative" or interesting in contrast to the "prep school" product, but it is wrong to speak relatively of anything, and even if Dover is better it still has had to conform to the general trends and pressures characteristic of education in this country. I feel especially in the last few years that Dover has lost some of the spirit of nonconformity and education for the sake of learning, interest and excitement. But it is wrong to make such a generalization in many respects and I have to admit that I have gained a lot at this school from associations with many teachers and students who have influenced my thinking greatly.

Student AD.--The shape of my education is one that I formed myself. The liberal type of education my school offers helps the student to direct himself toward his learning. I always had the feeling that it was myself that was the teacher, and the real teachers only acted as guides. In our core group discussions I was allowed to express and develop my own feelings and ideas on the subject we were discussing, even though I might be far off. The teachers encouraged us to develop our own ideas, and this was made possible in group discussions and opinion essays on the subject we were learning.

The school's value of education was not one of pressuring the students to competing against each other, but an evaluation of each student's individual abilities. In this manner we were able to work on our own growth, not to compete against other students.

This type of fluid education enabled me to shape my own thoughts and thus enable myself to gain an education best suited for me. I feel that this individual development of my education will help to guide me onward through college and afterwards. A person who thinks for himself will be the most successful.

Student AE.--When I think of my own definition of education, I find that I regard it as a preparation for coping with the problems of adulthood in today's complex society. From the moment a person enters the first grade to the day he receives his diploma, an all-out effort should be made to make him a well-rounded individual who will play a constructive role in society. Unfortunately, at Dover and many other progressive schools, the aforementioned aims of education have degenerated into a blind and senseless race--the big push towards college.

It seemed to me as I entered Dover in the fifth grade that it was a wonderful place. Learning became an adventure. The freedom of discovery and a new-found independence were like marvelous toys. The atmosphere of learning was informal. We learned by touching and seeing and experiencing rather than by being told facts. Even the mobility of the chairs seemed wonderful, for in public school they had been nailed to the floor in clear, undisputable, inescapable little rows. There were no more report cards by which one was measured in A's, B's, C's and D's. Instead, each teacher wrote a conscientious report on the progress of each child, outlining in detail how the child was developing as an individual personality, as a component of the group of children, and also how well he was grasping the curriculum. When all these reports were compiled, the result would be a three or four page document known as an evaluation. When a parent would read such an evaluation, he could really know just where his child stood in terms of development.

As I went on through school, however, it became evident that each new evaluation placed more and more emphasis on comprehension of subject matter while playing down character development. This change was not alarming however, since it was so gradual I only notice it now that I look back. And so it was in an anticipating, inquisitive state of mind that I entered ninth grade.

Then it changed. It was a barely perceptible change. On the surface it was still the same. The discovery, the curiosity, the progressive approach were all there. Yet something had changed! What?

After two years of high school the answer has become apparent to me. Although the means of education had not changed, the ends had done so drastically. The purpose of learning had ceased to be the development of the person, but became a ritual through which, after four years of preparation, we would be sacrificed to that mysterious and awesome deity: college. No more were there any evaluations. The marking reverted to the letter grades virtually equivalent to A, B, C, D. If the particular teacher was so moved, a small space was provided him to write a paragraph on the student's progress. What was still called an evaluation was now a mere report card. A new element was introduced; that of pressure. Learning became less and less palatable till now it almost seems pointless and repulsive. It is assumed by everyone at this school that all the graduates will go to college. This matter is never even given a second thought. It is only natural then that a curriculum that is geared towards college would evolve.

This sad state of affairs is further confounded by the fact that the school administration insists (although rather half-heartedly), that the aims of the school remain unchanged; that the purpose of Dover is to develop a well-rounded individual ready to face the world. They know just as well as I that this is no longer true. If for some reason a Dover graduate were unable to attend college and had to go out into the world on his own, he would most likely be a dismal failure. Any success he might achieve would have to be attributed to a personal strength of character rather than any quality instilled in him at Dover. The attitude of the school is: We'll prepare him for college, let college prepare him for the world. This is so wrong! College is the world. It is not just another school. To go on to college successfully one must be prepared as if he were to face the world, for he is doing just that. Formulas and dates and rules, in fact all the knowledge in the world, are not sufficient armaments for this undertaking. Decisiveness, a sound sense of values, honesty, clearness of thought; all these are necessary. And yet Dover does not supply them.

But Dover is not entirely at fault. It is victim of circumstance. In a fiercely competetive society, college has become an indispensible stepping stone to social status. In order to maintain an influx of students, the school must maintain an extremely high percentage of college admittance. Thus, in essence it must become a college preparatory school to survive. In doing thus, the credo of the school is no longer "Learning for the sake of learning." It is "Learning for the sake of college."

Progressive education has failed!

Student AF.--My educational experiences have been very diversified, and therefore have given me a very good idea of what I like and what I don't like. My first two years in high school were in a wealthy suburban community. The school there reflected the town very well. It never went too far with anything--always staying within traditional bounds so as not to stand out. Many of the good teachers would stay for only two or three years before they became fed up with the top-heavy administration and wanted more freedom in teaching than was allowed. I came out of this school with a fairly solid education because I took advantage of the few outstanding programs and teachers that were available. I was selected for the advanced placement science program which put me in a high caliber class, and gave me the best teachers. Any other good teachers I had were not only weakened by the administration, but also by having the Regents Curriculum hanging over their heads. This stopped them from going off on tangents since the required course had to be covered. The overall atmosphere in the school was the chief weakness. The snobby, status and grade conscious kids, racing their cars up and down the street before and after school made it a chore to go to school. My friends and I were by necessity driven away from the majority, and to a degree enjoyed the isolation with a "mightier than thou" glare. This is the chief fault of the situation. My friends who are still there increase their rebellion against the norm, and are driven to either complete nihilism, or to a state where they live for the weekends when they can either get drunk, smoke pot, or indulge in wild orgies. They become further alienated with the existing order, and revel in their feats.

After that, Dover School at first seemed like a paradise. The relative freedom, in and out of class, closer contact with the teachers and administration, and overall relaxed atmosphere lead to a greater desire to learn. For me, however, a glance at what a good school is like made me realize what a great one can be. The chief thing is the selection of students. I think that a school's sole interest should be education and that even with the sacrifice of a diversified student body, a truly fine school must choose students, or group them in classes according to academic ability. Then, real freedom can be practiced. Classes can be run on a seminar basis, and students can seek their own level. Dover does this to some degree. Last year I was allowed to work ahead in math--and completed the required course in one-half the alloted time. This should and can be encouraged in all courses. The chief weakness of Dover has been its size. It is not able, for financial reasons, to offer many diversified courses, and has a fairly static curriculum in that almost everyone follows the same program--core, language, math-science or literature electives. The lack of check-up quizzes at Dover has shown me that I have to do the work on my own, and that I am responsible for my education--all very fine ideals--but when I fail to do my work nobody kicks me in the pants. We all need this every once in a while.

What do I get out of all this--Dover is a hell of a lot better than my former school, but has a long way to go. I can only be happy that I've come to Dover and gotten a start on the right road.

Elmwood High School

Student AG.--Being a student leader has taught me how to balance studying and leadership duties and has developed a sense of loyalty to my fellows which I believe will be an example of loyalty to my fellow man in the future.

My education has set goals, some I reached, others I nearly made, and those in the future, a knowledge of what you want you must earn and a sense of loyalty to those you love and respect and those who do the same for you. The ultimate goal is that of doing the best one is able to do and that best should not be good enough for me.

Student AH--Character is the final warped quality made a product by this institution. Because of a general dislike for things forced upon people they learn to not do these things which are expected of everyone, yet forced at the same time. Should a person desire a neat room all the time he shall have it. When he is forced to do these things, or has the threat of punishment hanging over his head when he fails to do them, he suddenly loses his respect for that job. . . . A point of character which is built by all the "fine qualities" set forth here is that produced by a feeling that someone is always looking over your shoulder. You become first of all suspicious of your closest friends; this in turn makes you want to get even. Secondly you try to do things which you shouldn't because you enjoy such things as a full stomach and an after dinner smoke. You become proficient and this leads to bigger things.

An Elmwood grad has, along with a diploma, three other things: a masters in sneakiness, a masters in buddy-betraying, and a general all around sense of foul play.

Student AI.--At Elmwood there are many things that could stand radical changes. The administration says that they feel that their form of student government is by far the best. In "their form" of student government, the representatives of the students are chosen by the school administration rather than by being elected by the students. When questioned as to its validity, the reply was, "of course it's good and fair, because those persons whom we select would be elected anyway." This is, of course, a rash and somewhat false statement, but even if every one of the persons selected would have been the choice of the students, it is a very poor system. I feel this way because, were these people elected, they would have no fear of speaking up on some controversial school problem. Now, however, there are bound to be reservations because the school administration can very easily remove anyone they want from these offices. Thus, the power is not in the officers of the student government but rather solely in the hands of the administration. Thus it can readily be seen that our "government," has a close proximity to a monarchy in which the "representatives" are mere figureheads designed to give the students a false sense of democratic representation.

A further example of Elmwood democracy can be seen in the freedom of speech that we have. No, it is not against a law to say what you want in class, or what you feel on a composition; however, any verbal complaint is not listened to. Last year two friends of mine went up to see the principal of the school. What they wanted to say was that they didn't feel they should have to give up their study halls in order to scrub their rooms for some visiting dignitaries that the school wanted to impress. The principal, true to his brand of democracy, promptly threw them both out of his office, "because, he had no use for a person or persons who didn't want to help their school."

On the subject of impressions the only thing that we are geared to do is to impress parents, visitors, newspaper men, and people in general. In fact impressions seem to be more important than what type of person you are inside. I have heard eleven speeches on the subject and each time they seem more meaningless, for even though a person tries not to let it affect him, he comes to the conclusion that everyone who does not dress very neatly is a member of the down-and-out club, some creature that is subhuman. This, of course, is false, but our environment is such that some wears off on us no matter how hard we try to combat it. Yes, democracy and freedom are stressed at Elmwood. It is a true pity that they are not a practice also.

Student AJ.--As to the social side of Elmwood you learn a lot of things that are in great demand in the outside world. You learn that the only way to get what you want is to take it. You also learn how to get socked in the mouth if you try to cut in at a dance. You learn that if you do not go to a scheduled event you will end up with two hours detention. You learn that if you take your best friend and put him in charge he will soak you every chance he gets.

Student AK.--The courses are of a high caliber. The teachers are of fine quality and are, for the most part, considered "good guys" by the students. They offer tough courses which are very well handled on their part. The teachers are always anxious to help anyone with his problems in or out of class. This is extremely comforting to know. If a person needs some scholastic or personal advice or counsel he does not have to wait until the following day to have these questions answered. Most of the faculty live on campus and are available most of the time.

Student AL.--I did find that Elmwood's learning program was one of the best I have ever known. The teachers were of the highest caliber. I had challenging subjects and at first had a tough time changing my mode of study. I would like to point out at this time that although there are excellent opportunities here, I think a school without so many restrictions is far superior.

Student AM.--The athletics at Elmwood play a big part in the student's stay at Elmwood. The spirit to win is high in the student body and there are very few who would not come out to cheer on an Elmwood team to victory. However, in view of all the good things said about the athletics there are a few "tender" spots. For instance, if you play a varsity sport you are automatically a deity in the eyes of all the other students. If you break a rule during the season of that sport you are forgiven while the rest of the "bourgeoisie" receive a punishment for the same "mistakes." This builds up a player's ego and feeling of superiority until the season is over. Then he joins the ranks of the commonplace. When this happens someone else takes his position, summa cum laude, to play a sport which is in season. As far as the sports below this level, well there might as well not be any in the curriculum. The equipment is very poor, the coaching is not of the "best quality."

Student AN.--As I entered Elmwood, another new world came to me with new loyalties and goals not only in the courses but in sports as well. As I increased in knowledge I felt as if I was constantly approaching my big goal--college. My marks were continuously on the rise but I was sort of let down at the lack of toughness or should I say laxity in the school work, especially with my taking of two languages. The classes seemed to be more informal and adaptable to learning so again there was the will to work harder.

> Student AO.--The shape of my education during my four years at Elmwood has entailed several factors. First and foremost is the academic education I have received. It has been broad and compelled by pre-set standards--four years of math, four years of English, etc. Most any school has its share of clods for teachers and Elmwood is no exception. But the academic program in total has opened my mind. I am now aware of my general abilities in most academic fields. English has been by far the most interesting course I have taken. The teachers tend to keep one foot in the book and one foot on the ground--English is the only course which actually relates subject matter to reality; ideas to life. Academics in some fields are in strong need of improvement, but I have noticed throughout my four years that there has been a definite movement towards bettering deficiencies. All in all I can honestly blurt out that I have profited from the academic program at Elmwood.
>
> Secondly you have to take equally into consideration the extra and non-academic education the school offers. Since I came here I, and even my friends, have observed a marked change. I have grown up very fast. This change has come through association with people. People you like, people you dislike, people you are indifferent to. Here when you are repelled by an individual you just can't escape him. He's either next to you in class, in the cafeteria, or across the hall from you in the dormitory. You must adjust to your petty little antipathies and learn to live with these annoyances. The schedule is rough and demanding and it puts a lot of pressure on you--you learn to withstand it. Athletics have helped me greatly since I've been here--I guess it serves as sort of an outlet for your frustrations. . . . Many of my peers may state that there is "no freedom" in this place. Well, physically there isn't; but in order to have the mental liberalism in classes it is worth a few restrictions.
>
> In conclusion, I would like to say that I am not sorry I came here and I won't be sorry when I leave. The school has given me some basic idea of life--or at least what I consider to represent life--and helped me to open my mind to events and reasons.

Excerpts from some of the student essays were presented so that the personal impressions of students about their schools could be observed and so that additional information about the schools could be made available. The essays indicate how individual students perceive their educational environment. Some of the subtle differences in attitudes which would be difficult to treat statistically become visible.

Student Creativity

The creativity test results were analyzed in a number of ways. It was obvious that the original samples of students from the four high schools were not comparable either with regard to age, grade, sex, or IQ. To explore possible differences between schools, it was decided to analyze the results of matched groups. Two matchings were made. The first included twenty-three students from each of two high schools matched on age, sex, grade, and IQ. The second group consisted of twenty-five students from each of the four schools matched on age, grade, and IQ.

The two schools that were expected to exhibit the greatest differences in school characteristics, Dover and Elmwood, were examined for possible differences in student creativity as measured by the test battery. It was possible to match fairly precisely twenty-three students from each of these schools on IQ, grade, age, and sex. The students were judged to be of comparable socio-economic background. The results of this comparison are presented in Table 21. The means and standard deviations on each of the factors tested plus the composite score are summarized. A t-test for means revealed no significant differences between these two samples on any of the measures compared.

The creativity test results for the second matched sample are summarized in Table 22. The results of an analysis of variance for each of the four sets of scores appear in Table 23. Significant differences were discovered in both the flexibility factor and the composite score. Table 24 indicates how the means differed. On the factor of spontaneous flexibility it can be seen that Dover is

TABLE 21

CREATIVITY FACTOR VALUES FOR MATCHED GROUPS FROM TWO HIGH SCHOOLS

Factor	High School			
	Dover (N = 23)		Elmwood (N = 23)	
	M	SD	M	SD
Originality	5.23	1.05	4.76	1.53
Fluency	4.80	1.87	4.82	1.64
Flexibility	3.96	1.85	4.13	1.68
Creativity (composite)	4.76	.87	4.67	1.11

Note:

Values are expressed in C-scores (M = 5, SD = 2) based on normative data from 262 high school juniors and seniors.

TABLE 22

CREATIVITY FACTOR VALUES FOR MATCHED GROUPS FROM FOUR HIGH SCHOOLS

Factor	High School							
	Thornton (N = 25)		Waverly (N = 25)		Dover (N = 25)		Elmwood (N = 25)	
	M	SD	M	SD	M	SD	M	SD
Originality	5.07	1.04	5.21	1.27	4.92	1.44	4.92	1.53
Fluency	5.08	1.34	4.84	1.49	4.97	1.55	4.37	.91
Flexibility	6.32	1.49	5.72	1.66	4.16	1.74	5.24	1.93
Creativity (composite)	5.37	.79	5.16	.92	4.70	.93	4.78	1.07

Note:

Values are expressed in C-scores (M = 5, SD = 2) based on normative data from 262 high school juniors and seniors.

TABLE 23

ANALYSIS OF VARIANCE OF CREATIVITY FACTOR VALUES
FOR MATCHED GROUPS FROM FOUR HIGH SCHOOLS

Factor	Sum of Squares		df		Mean Square		F	p
	Between	Within	Between	Within	Between	Within		
Originality	1.45	187.24	3	96	.483	1.950	.25	N.S.
Fluency	7.20	181.85	3	96	2.40	1.87	1.27	N.S.
Flexibility	62.64	282.40	3	96	20.88	2.94	7.10	$<.01$
Creativity (composite)	7.45	87.47	3	96	2.48	.91	2.72	$<.05$

TABLE 24

MULTIPLE COMPARISONS OF SPONTANEOUS FLEXIBILITY AND CREATIVITY (COMPOSITE) VALUES OF MATCHED GROUPS IN FOUR HIGH SCHOOLS

Factor	Order of Magnitude			
	Lowest	Second Lowest	Second Highest	Highest
Spontaneous Flexibility	Dover 4.16	Elmwood 5.24	Waverly 5.72	Thornton 6.32
Creativity (Composite)	Dover 4.70	Elmwood 4.78	Waverly 5.16	Thornton 5.37

Note:

Based on Duncan's New Multiple Range test. Any two means not underscored by the same line are significantly different at the .05 level. Any two means underscored by the same line are not significantly different.

significantly lower at the .05 level of confidence from all three of the other schools. Elmwood scored lower than Thornton but not lower than Waverly. The difference between Thornton and Waverly was not significant. On the creativity composite score Thornton scored higher than Dover and Elmwood but not higher than Waverly. The differences between Dover, Elmwood, and Waverly were not significant.

The fifth hypothesis stated that students in schools judged to be high creative would perform better on aptitude tests of factors believed to be important for creativity. This hypothesis was not confirmed in the present study. In fact, there was a tendency for one of the traditional schools to perform better on these tests and for one of the high creative schools to perform less well. Dover, the school with the greatest number of characteristics considered important for creativity (as measured by the High School Characteristics Index) actually performed significantly less well on one factor. When students from Dover were matched with students from Elmwood, the school with the fewest characteristics of the high creative school, the results on the creativity tests were highly similar. Even though the High School Characteristics Index, the Inventory of Beliefs, and the classroom observations would tend to indicate that Dover exhibits the qualities considered important for creativity, the scores of the students on tests purported to measure creativity tended to be low.

CHAPTER V

SUMMARY, DISCUSSION, AND IMPLICATIONS

The present study was designed to obtain information related to the question: What are the environmental characteristics of schools judged to be the type that foster the development of creativity as compared with schools not considered outstanding in this regard? A number of hypotheses were made regarding expected trends as revealed by measures of environmental press, teacher personality, classroom performance, student attitudes, and student creativity. In comparison with traditional schools, high creative schools were found to have psychological environments characterized by high aspiration level, high intellectual climate, high student dignity, high academic climate, low academic achievement, low group life, low academic organization, low social form, and low vocational climate. The teachers were found to be less authoritarian, but not significantly less rational. In the classroom, teachers were more stimulating and original; students were more initiating. There were more evidences of activities believed to promote creativity. The attitudes of highly creative students toward their school experience were not significantly more positive. On the tests of factors believed important for creativity, the students did not perform better; in fact, on the factor of spontaneous flexibility the scores of students from one of the high creative schools were lower than the scores of students from the other three schools.

In the following paragraphs a discussion of each of the five hypotheses of the study will be presented, together with the implications suggested by the findings. A number of questions, problems, and proposals for further research suggested by the present study will be listed.

The first hypothesis concerned both environmental press scale scores and factor scores. The findings confirmed the hypothesis with regard to factors to a greater extent than with regard to scales, due probably to the more complete definitions made possible as a result of factor analysis. For this reason, the factor data, rather than the scale data, will be discussed.

Hypothesis 1 stated that high creative schools would score high on such factors as aspiration level, academic achievement, self-expression, academic climate, and student dignity; and low on such factors as academic organization and vocational climate. With the exception of the factors of academic achievement and self-expression, hypothesis 1 was generally supported. An examination of the academic achievement factor reveals that schools high in this factor set high standards of achievement for their students and that course work, examinations, honors, and similar devices are employed for this purpose. Because a case could be made that an overemphasis upon extrinsic means of motivation--such as formal examinations or honors--might tend to inhibit creativity, the findings with regard to academic achievement are not surprising. Quite likely, a high creative school would tend to de-emphasize external means of motivation.

It is difficult to explain the findings with regard to the factor of self-expression. This factor is concerned with the opportunities offered to the student for the development of leadership and self-assurance. One certainly would expect a high creative school to score high on this dimension. Although one of the high creative schools did receive the highest score, it was not significantly higher than the two traditional schools; the second high creative school scored significantly lower than two of the other three schools. Since it is difficult to account for this finding, further investigation would seem warranted.

Certain implications with regard to the psychological environments of high creative schools are suggested. Assuming that the high creative schools do, in fact, promote the development of creativity, we have available from the present study extensive descriptions of the environmental press of this type of school. These descriptions can be useful in a number of ways.

Pace and Stern (1958) have suggested that one potential value of the psychological approach to the measurement of environment is that of self-analysis. A study of student responses to the test items should reveal something useful about the dynamics of the school environment. The environmental press should have some clear relationship to the purposes of the school. The following statements about colleges are appropriate for high schools as well. "The objectives of a college are formal or explicit statements of intent: they indicate the directions in which a college means to influence the behavior of students. They find expression in curricula, practices, services, policies, and other aspects of the college environment. The press . . . constitute . . . an operational definition of objectives, or implicit influence of the environment upon the students. Implicit press and explicit objectives should reinforce one another, for an institution should operate in reality the way it means to operate in theory" (Pace and Stern, 1958, p. 276). Thus it would appear that a high school that has the development of creativity as one of its purposes would profit from a comparison of its own High School Characteristics Index profile with that of the high creative schools of the present study. Discrepancies might suggest directions for change.

Some aspects of the psychological environment can be changed more readily than others. The Index "provides some direct indications of the psychological implications of the various policies and practices. Roughly, one-fourth to one-third of the items in the Index state specific practices which an administration or faculty could more or less easily change if they did not like the implications. For example, being able to drop a course in which one is having difficulty, or to substitute another course for one which has been failed, is associated with counteraction; insisting that students reports or papers be neat, or giving students an assigned seat in class, or taking attendance regularly, is associated with order. As the relationships among press variables and between these variables and institutional objectives as well as personal needs are established, the significance of such specific practices will become clarified. Other items in the Index are more indirect in their implications about the effect of various policies or practices. But the clues can be investigated and can thus be the starting point for serious discussions about the impact of the environment on the student and the relation of this impact to the intended objectives" (Pace and Stern, 1958, p. 276). For example, a school purporting to foster creativity but which scores low on the factors of intellectual climate or student dignity would profit from an examination of the reasons for the low score. An examination of specific test items might suggest specific changes that would improve the climate for creativity.

Hypothesis 2 stated that teachers in the high creative schools would be less stereopathic and more rational than teachers in the more traditional schools. The findings confirmed the first part of the hypothesis, but not the second part; the teachers in the high creative school were less stereopathic, but not significantly more rational. Since the sample of teachers in all four schools included highly educated individuals who would be expected to be reasonably rational and consistent in their beliefs, the findings with regard to the rational-irrational dimension are not particularly surprising. The most crucial part of the hypothesis was that concerning the stereopathic dimension, and that part of the hypothesis was confirmed. Teachers in the high creative schools tended to be more adaptive, flexible, outgoing, permissive, and nurturant.

These findings suggest that teacher personality is an important variable in the school environment. Any institution attempting to move in the direction of making greater provisions for the development of creativity would need to take into account the influence of teacher personality upon the over-all climate. The findings of the present study would suggest that non-stereopathic teachers would contribute in a positive way to a high creative school climate. In staffing a school, considerations of this aspect of teacher personality would seem reasonable. Although it is difficult to change existing attitudes, effort expended to this effect might pay valuable dividends in situations where one must work with an existing faculty.

Hypothesis 3 stated that classroom learning situations in high creative schools would contain more of the features expected of an educational program that encourages creativity. There would be evidence that originality, initiative, and invention were encouraged. The teachers would be more stimulating and original; the students would be more initiating. This hypothesis was generally confirmed.

The findings suggest that the classroom observation instruments employed in the present study (the Observation Schedule and Record and the Classroom Observation Record) are useful in evaluating classroom activities and behaviors considered important for creativity. Instruments such as these should prove useful in experimental studies in which deliberate attempts to influence classroom behavior are made. For example, observations made before and after a period of teacher in-service training might indicate whether or not expected changes in classroom behavior had occurred.

Hypothesis 4 stated that highly creative students in high creative schools would exhibit more positive attitudes toward their school experience than would highly creative students in traditional schools. This hypothesis was not substantiated. It would appear that whether or not a school environment contains characteristics considered important for the development of creativity makes little difference with respect to attitudes toward the school of the highly creative students.

A number of explanations might account for this finding. Possibly the personality characteristics of highly creative students (independence, for example) enable them to function well in situations which would appear to stifle creativity. Since they are more resourceful and self-confident than the average student, highly creative students might be better equipped to function in creative ways even in restricted environment. One student at the most traditional of the four schools of the present study stated that even with the large number of restrictions at the school, he felt he had the freedom necessary to do what he felt was important to do.

Another possible explanation might be that students are not aware of the short-comings of their school experience. A number of essays written by students at the most distinctively high creative school who had previously attended traditional schools describe the startling difference in school atmosphere at the high creative school. It would be interesting to investigate changes in attitudes of students in traditional schools if they had the opportunity to spend some time at a high creative school. How would the students of Thornton react if they were placed in the Dover setting, and vice-versa? Quite likely, the Dover students would be extremely unhappy at Thornton, and the Thornton students quite uneasy at Dover--at least at first. However, it would be expected that after a time at Dover, the Thornton students would be less satisfied with the educational program at Thornton. It would probably be discovered that highly creative students moving from high creative schools to traditional schools would experience extreme discontent, whereas highly creative students from traditional schools would at first be uneasy in high creative schools, but soon would adapt to the freer situation and be reluctant to return to the traditional program.

Hypothesis 5 stated that students in the high creative schools would perform better on tests of factors considered important for creativity. This hypothesis was not confirmed. In fact, there was a tendency for one of the traditional schools to perform better on these tests and for one of the high creative schools to perform less well. On the factor of spontaneous flexibility, the high creative school having the greatest number of characteristics considered essential to a high creative school environment (Dover) scored significantly lower than the other three schools. It is difficult to account for this finding, especially since most of the other evidence would tend to indicate that Dover had many of the environmental characteristics considered important for developing creativity.

A number of possible explanations for this finding are presented. (1) There is still uncertainty about the degree of validity of the creativity tests of the present study. (2) There was some evidence that the particular group of students at Thornton High School was atypical, the class being considered by a number of teachers to include a greater number of highly creative youngsters than usual. Although there was little evidence to the effect, it is possible that the students at Dover might have been atypical in the opposite direction, that is, the sample might have included students who were less creative than the typical Dover student. The only suggestion in this regard was the fact that the sample at Dover included a number of students under psychiatric treatment for emotional problems. During one testing session a number of students behaved in a disruptive manner. One teacher said he thought this particular group contained a number of individuals who might have perceived the testing situation as threatening to themselves. (3) The testing situation itself might have adversely influenced the effort the students put forth in taking the tests. At Dover the students had not been previously notified that they would be tested at the particular time agreed upon by the principal and the investigator. A number of students resented losing their study period. About ten percent of the group refused to take the test, and went to the library. It is possible that the students who remained to take the tests had a negative "set" toward the activity, and put forth less than their best efforts. (4) Some students at Dover seemed to resent testing in general, expressing the opinion that they were tested too much as it was. In addition, a hostile feeling toward evaluation of any kind was in evidence at the school. (5) The fact that the tests were timed might have bothered some of the students. It was noted that some students seemed disturbed when time was called and they had to move on to a different part of the test.

(6) Another observation that might have some bearing on the test performance was that there seemed to be a difference in the way students responded to direction in the public schools as compared with the private schools. (It is noted that students in the public schools tended to perform better on the creativity tests than did students in the private schools, although not significantly so.) The private school students were considered by the investigator to be less cooperative, more autonomous, and more independent than the public school students. They wanted to know whether or not they were required to take the tests and why they were taking them. A number of students at Dover and Elmwood refused to participate. At the public schools

(Thornton and Waverly), on the other hand, there were few questions asked. The students responded to the tests very well; they seemed to put forth a great deal of effort. Although some were curious about the tests, no one asked to be excused from taking them. The cooperation was nearly perfect, with close to one hundred percent participation in both schools. It is possible that the attitudes of the students toward taking the tests in the different schools affected the performance on the tests. The public school students appeared to be accustomed to doing what they were told to the best of their ability. The private school students were not accustomed to doing things just because they were requested to do so, especially when an "outsider" was involved and when the activity was not a part of the regular school program.

Since the tests of factors considered important for creativity used in the present study were selected from the tests developed by Guilford and his associates, a number of implications for education of the structure of intellect are examined. Guilford (1959) stated that the most fundamental implication is that we must change our conception of the learner and of the learning process. At the present time the learner is considered to be a kind of stimulus-response device, similar to a vending machine. A coin is placed in the machine and something comes out. The machine learns the proper reaction when it receives a certain coin. We must change our conception and begin to think of the learner as an agent for dealing with information in a way similar in many respects to an electronic computer. A computer is fed information; the information is stored; the information is used, in either a divergent or convergent manner; and the results are evaluated. The human learner has the advantage of being able to seek and discover new information from sources outside itself and of being able to program itself. This conception of learning leads to the idea that learning is discovery of information rather than the formulation of stimulus-response connections. "If we take our cue from factor theory, however, we recognize that most learning probably has both specific and general aspects or components. The general aspects may be along the lines of the factors of intellect. This is not to say that the individual's status in each factor is entirely determined by learning. We do not know to what extent each factor is determined by heredity and to what extent by learning. The best position for educators to take is that possibly every intellectual factor can be developed in individuals at least to some extent by learning" (Guilford, 1959, p. 478).

Guilford believes that if education has the general objective of developing the intellects of students, we might consider each intellectual factor as providing a particular educational objective. "Defined by a certain combination of content, operation, and product, each goal ability then calls for certain kinds of practice in order to achieve improvement in it. This implies choice of curriculum and the choice or invention of teaching methods that will most likely accomplish the desired results" (p. 478). We need to ask whether general intellectual skills are now being neglected and whether appropriate balances are being maintained. It is possible that we need a better balance of training in the divergent thinking category and the transformation category as compared with training in convergent thinking, critical thinking, or evaluation.

A model such as the structure of intellect serves to provide a specific framework for considering the dimensions of intellect. Even though it is tentative and imperfect, it provides a concrete model based on sound theory and sound basic research methodology. Assuming that training and experience are related to the development of thinking skills, it is important not only to understand the skills but also to plan procedures for their development through education. A model such as the structure of intellect could be used in helping teachers and students understand the nature of intellectual skills.

Once an understanding of intellectual skills important for creativity is obtained, it is possible to develop improved methods for observing and evaluating classroom activities designed to exercise these skills. Assuming that it is possible to judge classroom behavior, advances could be made in pointing out ways for improving school programs. For example, an instrument might be used which spells out in detail various behaviors considered to facilitate the development of certain intellectual skills. The teachers observed might be involved in discussing the particular observations made in their own classrooms. The feasibility of including certain types of classroom activities might be examined. This would assist teachers in learning how to develop in their students skills important for creativity. This might lead to a reexamination of existing units of instruction to discover whether or not they include a reasonable balance between provisions for learning creativity as well as provisions for learning by authority. It might be helpful deliberately to revise a traditional unit so that it includes provisions for creative learning.

Listed below are a number of questions, problems, observations, and proposals related to the present study or suggested by it. Included in these questions are ideas related to implications for education of existing research knowledge on creativity.

1. Research indicates that in-service programs designed to encourage creative teaching have not been particularly effective (Torrance, 1964). The present study furnished a number of descriptions of creative learning situations. In the judgment of the investigator, there could and should be considerably greater provisions for developing creativity than exist in the "high creative" schools of the present study. The problem would seem to be to discover effective ways to teach teachers how to initiate creative activities. A knowledge of techniques does not seem to be the answer. Possible attempts to change teacher attitudes in directions considered desirable for creativity would prove helpful. What would be the effect upon the climate for creativity of changes in teacher personality in the direction of becoming less authoritarian, and therefore more flexible and adaptive? What techniques are most effective in changing teacher attitudes? Longitudinal studies might be planned which record the development of student creativity through different levels of education in a school system in which deliberated attempts are made to create a more favorable school environment for creativity.

2. At Dover High School, the most distinctively high creative school, the scores on the environmental press scales of deference, narcissism, and order were markedly low. On the narcissism scale, for example, whereas the raw score values for most schools tended to be high, the raw score at Dover was only 3.52, and the stanine score was .17, the lowest standard score for any of the schools on any of

the scales. This would indicate that at Dover, in comparison with most schools, students do not take a great deal of pride in their personal appearance; looking and acting "right" is not very important to teachers and students; students who are not neatly dressed are not likely to have this called to their attention; students seldom receive compliments when they come to school with new clothing, a new haircut, or a new hairdo; making a good impression is not important; and teachers are not always carefully dressed and neatly groomed. Further investigation into the causes and implications of these findings would seem warranted. Does the lack of concern for personal appearance, for example, provide clues to a pattern of values that has a bearing upon the climate for creativity?

3. A number of questions are suggested by the finding that teachers in high creative schools tend to be more flexible and adaptive than teachers in traditional schools. Do flexible teachers have needs that are best met in a relatively freer school environment? In what ways does this dimension of teacher personality influence the climate for creativity? How crucial is this dimension of personality for creative teaching? What techniques are effective in helping teachers become more flexible and adaptive? Should in-service programs focus on attempting to change teacher attitudes before attempting to provide specific techniques of creative teaching?

4. What advantages would accrue if students had the opportunity to select the type of learning experience they preferred, that is, if students could choose between a course with provisions for creative learning versus a course taught mainly by traditional methods, or if students could choose between teachers who teach in creative

ways versus teachers who teach mainly in traditional ways?

5. What differences in student creativity would result from deliberate attempts to change certain features of the psychological environment of the school? Many of the characteristics measured by the High School Characteristics Index could be changed if the change seemed desirable. For example, if the administration and faculty at Elmwood desired to improve the intellectual climate at the school, they might attempt to change policies and activities that contribute to the intellectual climate factor. The score on the press scale of reflectiveness, which contributes to the factor of intellectual climate, was somewhat low at Elmwood. To change this value, the faculty and administration might encourage students to read books and attend movies dealing with psychological problems, promote an interest in modern art and music, the basic meaning of religion, personal values, and a philosophy of life; and encourage and reward imaginative writing, the expression of individual ideas, and serious discussion.

6. A study similar to the present one might be conducted at the elementary school level. An Elementary School Characteristics Index might be developed which would provide a measure of elementary school climate. Because of the many differences between elementary and secondary schools, such as those relating to departmentalization, the greater exposure of the children to a single teacher, the potential for greater program flexibility, and the size of the school, a study at that level should suggest interesting implications of some of the differences between the elementary and secondary level.

7. Would the differences in performance on the test of spontaneous flexibility which appeared in the present study appear

in other similar situations? If so, what might account for the differences?

8. Using the structure of intellect as a model, an instrument might be devised which would make it possible for an observer to discover which of the factors of intellect are being exercised in a learning situation. The instrument would include descriptions of all the known factors. The observer would tabulate whether or not provisions in the learning situation were available for exercising the factor and to what extent. For example, activities which would encourage originality might be tabulated and described.

9. The present study would have been strengthened if it had been possible to include a consideration of the creative productivity of the students of the four schools. If it had been possible, for example, to assess actual creative achievement in science, literature, mathematics, the social studies, and art, considerably greater confidence could be placed in the findings. To some extent this was done in an informal fashion. It would be obvious even to the casual observer, for example, that the creative productivity in art at Dover far surpassed that of the other three schools. Several individuals who had read the student essays of the present study commented that the treatment of the topic was more imaginative and the writing more creative in those essays written by students from the high creative schools. An extension of the present study might include the use of some type of evaluation instruments for judging the creative production of the students.

10. The present study provides considerable evidence to substantiate the judgments of the individuals involved in nominating

high creative schools. The selection was confirmed by the findings of the High School Characteristics Index, the Inventory of Beliefs, and the classroom observations. In addition, it is felt that the student essays contain data which would have provided additional confirmation had the essays been subjected to content analysis. It is suggested that the essays from the high creative schools not only describe learning environments that are essentially more favorable to the development of creativity but that they are more creatively written as well. The essays themselves might be considered samples of student creative productivity. For these and for other reasons, an analysis of the content of the essays quite likely would yield additional valuable information.

Although the present study raised more questions than it answered, it did serve to provide data related to the central question of the investigation: What are the environmental characteristics of schools judged to be the type in which creativity finds a favorable climate for development? Tentative descriptions of the psychological environments of high creative schools are presented, together with information about teacher personality, classroom behavior, student attitudes, and student creativity. The extremely complex nature of creativity becomes evident from an attempt such as this to examine it in actual school situations. Since there is a need among educators for a greater understanding of the nature of creativity and how its development is promoted, studies of this type, which attempt to relate recent research and theory to classroom situations serve a useful function in suggesting directions for further effort in this important area.

APPENDIX A

INSTRUCTIONS FOR RATING STUDENT CREATIVITY

You are requested to make a judgment regarding the creativity of a number of students whom you know. Please read the following description of a creative person. You may not agree entirely with this definition, but for the purposes of this study you are asked to think in terms of what is stated here. Then from the accompanying list of students, select the five students who, in your opinion, best fit the description. Place a 1 (figure one) after the name of the student you consider most highly creative (that is, most like the description). Place a 2 after the name of the student you consider next most like the description, and so on up to 5.

Description of a Creative Person

The creative person tends to be original in his thinking, sometimes having wild or unusual ideas. He is fluent in his use of words and in his production of associations, expressions, and ideas. Flexible in his thinking, he is quick to strike out in new directions, often abandoning customary interpretations of usual objects in order to use objects in new ways. Because of a general sensitivity to problems, he seems to know when things are not as they should be.

He is independent, dominant, self-confident and self-accepting. He has a need to develop personal independence to a high degree. Tolerant of ambiguity, he is willing to accept uncertainty in conclusions and decisions. He often seems dissatisfied, irritated and discontented. Usually full of energy, he is willing to work hard and long on tasks that interest him.

He likes "divergent" thinking: instead of thinking toward one right answer, he is likely to think that several answers will do. He has an interest in and liking for aesthetic expression, reflective thinking, rigorous thinking, fantasy, originality, and creativity in general.

THANK YOU FOR YOUR COOPERATION.

APPENDIX B

INSTRUCTIONS FOR WRITING ESSAYS

"What has been the shape of my education? And what effect has the shape of it had?"

Please write a carefully planned and unified essay in which you consider the above questions. You will be writing about your own personal experience of education.

These instructions are deliberately intended to be non-specific, even somewhat vague, so that you can develop the topic in your own way. In order to provide illustrations of how other students have responded to this assignment, several excerpts from essays written by university freshmen are presented. (These are excerpts only, not the complete essays.)

There are no requirements regarding the length of the essay. Use whatever space is necessary to record your most important impressions, memories, and feelings about your high school in as simple and direct fashion as possible.

Begin writing as soon as possible. You will meet with Mr. Walker (date, time, and place)____. At that time you will have the opportunity to complete the assignment. If you have questions, refer them to Mr. Walker who will be at the school most of the week.

Since the essays are a part of a research study, neither the names of the students writing them nor the school itself will be identified.

Please return these instructions.

THANK YOU FOR YOUR COOPERATION.

EXCERPTS FROM STUDENT ESSAYS

Alder School.--There was always room for "extras" which we felt were just as much a part of the learning experience. Talk of all sorts was considered creative in itself. It was quite normal to talk regularly with some favorite teacher. The afternoons especially allowed for informal conversation. The schedule was never rigid at the expense of the individual's growth. For example, two students and a teacher might begin talking about something they had been learning or about problems in the classroom or about discipline or the student government's current concerns. Any of these might lead to new insights, solutions or ideas, or proposals for future projects. If a discussion like this ran over into gym time it was none the less considered constructive and therefore it was never a problem to get an excuse for being late. The enthusiasm generated in those sessions spread to other students, and it was just such enthusiasm which kept the school alive and an exciting place to be.

Beech School.--The Beech School girl is aware of her tendency to wear something extravagant, bizarre, and non-utilitarian. "An impartial survey" states that the "average Beech girl wears a fur-lined hat to school. She runs her fingers over invitations to see if they are engraved." In yearbooks girls may be associated with a certain expensive clothing store, and with "glittering gold." Clothing need not be bizarre to serve, by its impracticality, as a status symbol. Girls from eighth grade on are required to wear stockings to school, though they regularly run on the sharp edges of the chairs. Though some resent the expense, most Beech girls are proud they do not look cheap like the Linden School girls who wear socks.

In the academic part of the school there is some of the same whimsical frivolousness that may or may not be used to show status but is in any case a result of status. The Beech girl, instead of learning to write conventional script, is taught to illuminate like a medieval monk. These non-utilitarian tendencies can lead to a sense of the inherent importance of learning. Teachers praise the Athenians who believed that one should pursue knowledge for its own sake regardless of usefulness. Science is not stressed. It is more useful than mathematics, which is emphasized. Mathematics is good for your reasoning power if not practically very useful.

Elm School.--When education at Elm School became a contest, it became the desire of every Elm School boy to "stay in" or, more accurately, to "keep from getting thrown out." What was so important about staying in? What was the prize that the contest offered?

Actually, there is no prize. It is the contest itself that counts. Elm School is fiercely competitive. There is a world of difference between a grade or 84 and a grade of 85. The students love the contest, while at the same time they hate it. "I often argue with my teachers about a few points on my report card," one student admitted. "I feel ridiculous doing it. But at the same time, I enjoy it. It's all part of the struggle between student and student and between student and teacher. As I said, it's ridiculous, and I wish I weren't in it." I asked him if he would prefer a school where grades do not mean as much. "There ain't no such thing," he answered. "It's part of life."

A student who is presently at the school summarized: "At Elm School it matters little how you play the game, what's important is that you don't lose."

Oakwood School.--Individual student-teacher relationships are stressed. Since the school is so small, every student knows every teacher anyway, and the school encourages contact. The teachers eat with the students at meals (in fact it's required that there be a faculty member or student council member at each table), talk informally to the students, play tennis with them, and so forth. In this way the students do not only know the teachers, they are friends with them, and the influence of the teachers on the thought of the students is considerable.

Spruce School.--The Nineteenth century inner-directed ethic may be dead in most of America, but it lingers at Spruce. The aspect of it that most affects cadets is the value placed on achievement, striving, competition, and winning. Related to this are the qualities of character necessary for success in competition--courage, daring, fortitude, strength, initiative, drive, and manliness. "Victory in life comes to those who have the fibre to fight." A second important aspect is the morality of honesty, fairness and "contempt for what is base and mean."

APPENDIX C

DIRECTIONS FOR RATING STUDENT ESSAYS

These essays were written by high school juniors and seniors about their own experience of education. They were asked to consider the question: What has been the shape of my education and what effect has the shape of it had?

Please read the essay. Then make a judgment regarding the student's general attitude toward his present high school. Several of the students wrote about other schools they had attended in addition to the present one. For the purposes of this rating, however, the concern is mainly with the student's attitude toward the school he is now attending.

You will discover that students are often very favorable toward some parts of their education and very unfavorable toward others. Is some cases it will be difficult to make a decision, but you are requested to consider the student's general over-all attitude.

Use the rating scale that appears below to record your rating. Circle the number corresponding to the degree of positive or negative attitude. Write the name of the school in the space provided. (Schools have been randomly assigned fictitious names.)

You may want to comment on a particular essay. Please do so at the bottom of this page.

NAME OF SCHOOL________________________

Negative attitude, highly critical, generally dissatisfied with school experience				Positive attitude, much praise, generally satisfied with school experience		
1	2	3	4	5	6	7

Comment:

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